**SIGACCESS Annual Report**

**July 2019 - June 2020****Submitted by: Shari Trewin, Chair**

***SIGACCESS supports the international community of researchers and professionals applying computing and information technologies to empower individuals with disabilities and older adults. The SIG also promotes the professional interests of students and computing personnel with disabilities and strives to educate the public to support careers for people with disabilities.***

## Research and Innovation in Accessibility

Accessibility research seeks to understand and overcome access barriers. There is growing concern in the disability community about the implications of mainstream artificial intelligence solutions on their inclusion and anonymity. While machine learning techniques are enabling breakthroughs in assistive technology capabilities, they also have the potential to perpetuate, reify and even amplify existing biases against marginalized individuals. To encourage research attention to these problems, ASSETS 2019 hosted a [workshop on AI Fairness for People with Disabilities](https://assets19.sigaccess.org/ai_fairness_workshop_program.html), sponsored by IBM Research. The day featured 18 presentations and posters and a keynote talk by Alexandra Reeve-Givens, Executive Director of the Institute for Technology Law & Policy at Georgetown University, who reviewed the legal tools to address algorithmic fairness for people with disabilities. SIGACCESS also sponsored a performance of Project Amelia prior to the conference. This immersive theater performance spotlighted the ethical questions of sharing personal data. This year’s ASSETS conference keynote talk amplified this theme: “[*My Algorithms Have Determined You’re Not Human: AI-ML, Reverse Turing-Tests, and the Disability Experience*](https://assets19.sigaccess.org/keynote_speaker.html),”, by Karen Nakamura, the Robert and Colleen Haas Distinguished Chair in Disability Studies at Berkeley. These provocations sparked many interesting and important conversations.

This year’s ASSETS Best Paper was one of several exploring technology experiences and innovations in the Deaf and hard of hearing communities. The award-winning paper ‘[*Sign Language Recognition, Generation, and Translation: An Interdisciplinary Perspective*](https://dl.acm.org/doi/10.1145/3308561.3353774)’ by Danielle Bragg, Oscar Koller, Mary Bellard, Larwan Berke, Patrick Boudreault, Annelies Braffort, Naomi Caselli, Matt Huenerfauth, Hernisa Kacorri, Tessa Verhoef, Christian Vogler and Meredith Morris describes a multidisciplinary workshop which led to the creation of a literature review and calls to action for the research community in sign language technologies.

Another prominent research theme was navigation and wayfinding, including the winner of the Best Student Paper award: ‘[*Deep Learning for Automatically Detecting Sidewalk Accessibility Problems Using Streetscape Imagery*](https://dl.acm.org/doi/10.1145/3308561.3353798)*’* by Galen Weld, Esther Jang, Aileen Zeng, Anthony Li, Kurtis Heimerl and Jon Froehlich. This paper describes the creation of artificial intelligence technology for automatically analyzing images of streets and sidewalks, to identify areas where there may be accessibility barriers.

In 2019 the SIGACCESS ASSETS Paper Impact Award recognized the authors of an ASSETS conference paper presented 10 or more years prior to the award year which has had a significant impact on computing and information technology that addresses the needs of persons with disabilities. This year, the award was given to Shaun K. Kane, Jeffrey P. Bigham, and Jacob O. Wobbrock, who authored the paper ‘[*Slide rule: making mobile touch screens accessible to blind people using multi-touch interaction techniques*](https://dl.acm.org/doi/10.1145/1414471.1414487)’, which was originally published at ASSETS 2008. This work examined techniques for making touchscreen interaction accessible for users who are blind.

## SIGACCESS Programs

Our flagship conference, [ASSETS 2019](https://assets19.sigaccess.org/index.html) was held in Pittsburgh, USA, chaired by Jeff Bigham of Carnegie-Mellon University and Apple, with Shaun Kane, University of Colorado, USA, and Shiri Azenkot, Cornell Tech as Program Chairs.

This year, we helped to grow and diversify the field of accessibility through the ACM Student Research Competition, the ASSETS Doctoral Consortium (sponsored by NSF), a mentoring program for new authors, and 3 travel scholarship awards. ASSETS 2019 also featured user experience reports and a user experience panel on accessibility for living, bringing the lived experience of individuals experiencing disabilities to the research community.

SIGACCESS travel award recipients, one of whom is a person with a disability, were:

* Julia Kerns, University of Maryland College Park, USA presented a poster on captioning practices in Deaf Vlogs on YouTube.
* Ebrima Jarjue, University of Maryland College Park, USA presented a poster on blind photography in the context of teachable object recognizers
* Dr. Ikram Asghar, University of South Wales, UK, was not able to attend due to visa problems. He will use the award to attend ASSETS 2020.

SIGACCESS also provided $5000 in sponsorship for a workshop held at CHI 2019 on ‘[*Hacking Blind Navigation*](https://blindnavigationchi19.wordpress.com/)’, co-organized by João Guerreiro of Carnegie Mellon University. The funds supported travel expenses for panelists, and lunch.

We also supported a panel session ‘*Perspectives of success and barriers*’ featuring three social media users with disabilities at the CSCW 2019 Workshop on ‘[*Addressing the Accessibility of Social Media*](https://dl.acm.org/doi/10.1145/3311957.3359439)’. SIGACCESS sponsorship provided travel and accommodation expenses for the panelists. Awareness of our panel/workshop sponsorship program is growing, and although our 2020 sponsored events are not going ahead, we have two workshops tentatively identified for 2021. These will build awareness of accessibility research challenges and opportunities in the pervasive computing and computer vision communities.

SIGACCESS serves both the accessibility research community and the broader ACM community by maintaining a set of resources to support improved accessibility in academic publications and events. This year, we added [guidance on describing figures](http://www.sigaccess.org/welcome-to-sigaccess/resources/describing-figures/) in ACM papers and an upgrade to our [conference accessibility FAQ generator](http://www.sigaccess.org/accessibility-faq-page-generator-2/), which is now used by several SIGs as a basis for providing conference attendees with access information. With the Covid-19 pandemic, we are working with the [Access SIGCHI](https://accesssigchi.com/) group and the ACM [Diversity and Inclusion Council](https://www.acm.org/diversity-inclusion) to expand our resources to cover virtual and hybrid events.

## Key Issues

Within ACM, we see increasing interest from SIGS in supporting diversity and inclusion, including accessibility of SIG events, publications, and digital resources. At the same time, SIGACCESS is examining and expanding its own diversity initiatives. We have committed 100% of our projected 2020 revenue and [called for community input](http://www.sigaccess.org/newsletter/2020-06/blacklivesmatter.html) on the best ways to invest these funds to tackle both racism and ableism in accessibility research. Of particular interest are issues of intersectionality. Life as a person of color with a disability or neurological difference is especially dangerous. Many high-profile victims of police violence are also people with disabilities (Perry & Carter-Long, 2016). Black people with disabilities have the highest likelihood of being arrested before age 28 of any race/ability group (McCauley, 2017), and “disabled individuals make up a third to half of all people killed by law enforcement officers.” (Perry & Carter-Long, 2016) Even at school, “students of color who have been labeled “disabled” are more likely (by 31 percent) to be suspended and expelled from school than other kids.” (Ijeoma, 2019). We expect to support workshops, education, and outreach initiatives over the coming year.

1. Oluo, Ijeoma. 2019. So You Want to Talk About Race. Basic Books.
2. Erin J. McCauley 2017. The cumulative probability of arrest by age 28 years in the United States by disability status, race/ethnicity, and gender, American Journal of Public Health 107, no. 12 (December 1, 2017): pp. 1977-1981.
3. David Perry & Lawrence Carter-Long, 2016. The Ruderman white paper on media coverage of law enforcement use of force and disability: a media study (2013-2015) and overview

**SIGAI Annual Report**

**July 2019 - June 2020**

**Submitted by: Sanmay Das, Chair**

It has been a first year full of unexpected challenges for the new officers of SIGAI! Along with the election of a new leadership team, we began the year with many changes, including integrating a new leadership team, changes in several of the appointed officers, and of course the global pandemic which has radically altered many of our activities! Of particular note, we are excited to welcome on board Louise Dennis as the new conference coordination officer, Anuj Karpatne as a new co-editor for AI Matters, and Alan Tsang as the new information officer, taking over from Michael Rovatsos, Amy McGovern, and Hang Ma respectively. We are very grateful to Michael, Amy, and Hang for years of excellent service to SIGAI! While we were working on several new initiatives, like everyone else, the Covid-19 pandemic changed the nature of what we were able to do and what we had to focus on. Nevertheless, we managed to get several of these initiatives off the ground and were lucky in that SIGAI was well-positioned both financially and in terms of our rapport with many communities.

**Meetings**

ACM's Meetings have been greatly impacted by the ongoing Covid-19 crisis. For SIGAI, this started with the last-minute cancellations of IUI 2020 and HRI 2020 (with HRI, despite the short notice, heroically managing to pull together an online version of the conference). Fortunately, ACM SIGAI's funds were robust enough that we could successfully absorb our share of the costs of these cancellations while continuing with the SIG's other activities. Since the crisis began to unfold in February and March the ACM has been building up a store of expertise and support services for online conferences which are now available to conferences running in cooperation with, or sponsored by, ACM SIGAI.

ACM SIGAI sponsored the following conferences:

* IVA 2019
* WI 2019
* ASE 2019
* AIES 2020
* IUI 2020 (cancelled)
* HRI 2020 (moved online)

and it will sponsor the following conferences coming up in 2020 and 2021:

* ASE 2020
* IVA 2020
* CSCS 2020
* WI 2020
* IUI 2021

ACM SIGAI approved the following in-cooperation requests from events covering a wide thematic and geographical range across the international AI community:

* RecSys 2020
* CSCS 2019
* K-CAP 2019
* AIVR 2019
* BIOSTEC 2020
* ICAART 2020
* ICPRAM 2020
* ICEIS 2020
* AAMAS 2020
* IEA/AIE 2020
* MSR 2020
* DeLTA 2020
* IC3K 2020
* IJCCI 2020
* ROBOVIS 2020
* ICINCO 2020
* FDG 2020
* ICPRAM 2021
* BIOSTEC 2021
* ICAART 20201
* IEA/AIE 2021

ACM SIGAI has continued to work with conferences to encourage participation in the ACM Carbon Offsetting scheme, but this is necessarily somewhat on hold.

**Financial Support**

In 2019 ACM SIGAI introduced a student travel award scheme intended to help fund conference attendance for student ACM members. This extended long-standing collaborations with specific conferences to fund student attendance. This funding is being targeted towards conferences sponsored by, or in-cooperation with, SIGAI and at students presenting work at those conferences - though other applications are exceptionally considered. Sixteen students were funded by this scheme primarily to attend IVA 2019 and ASE 2019. Most of these students were studying at US institutions.

As part of a long-standing arrangement, we also helped fund the attendance of six students to the AAAI Doctoral Consortium. Most of these were studying in Europe, though one was based in Australia and one in Canada.

While the nationalities of the students we have given travel awards to is more diverse than the institutions where they are studying, the vast majority have still come from the USA, Canada, or Europe. At present, understandably, we have very few applications coming in through the scheme (only one in all of 2020 to date). Once conference travel is more widespread again, we will revisit the way the scheme is advertised in the hope that we can support a wider range of conferences.

We also ran a second round of the AI Activities Fund call for proposals, focused on outreach and other activities that can be done entirely virtually and received several strong proposals. We are in the process of finalizing funding decisions at the time of writing and expect to fund 4 or 5 proposals with between $1000-$2000 of support going to each one that is funded. These awarded activities will be writing reports in AI Matters after completion of the work.

**Awards**

ACM SIGAI sponsors the ACM SIGAI Autonomous Agents Research Award, an annual award for excellence in research in the area of autonomous agents. The recipient is invited to give a talk at the International Conference on Autonomous Agents and Multiagent Systems (AAMAS). The 2020 ACM SIGAI Autonomous Agents Research Award was presented (virtually) at AAMAS 2020 in Auckland, New Zealand to Munindar Singh, the Alumni Distinguished Professor of Computer Science at North Carolina State University, for his extensive contributions to our understanding of social interaction and autonomy in Artificial Intelligence through his seminal work on interaction protocols, norms, and trust in multiagent systems.

ACM SIGAI also sponsors the ACM SIGAI Industry Award for Excellence in AI, a new annual award which is given annually to an individual or team in industry who created a fielded AI application in recent years that demonstrates the power of AI techniques via a combination of the following features: novelty of application area, novelty and technical excellence of the approach, importance of AI techniques for the approach and actual and predicted societal impact of the application. The inaugural ACM SIGAI Industry Award for Excellence in AI was presented at the International Joint Conference on AI (IJCAI) 2019 in Macau to the Real World Reinforcement Learning Team from Microsoft. The process for the 2020 award and the IJCAI 2020 conference was severely impacted due to the COVID-19 outbreak. Hence, there is no award for 2020 but the committee is working hard for the 2021 award.

ACM SIGAI also recently created, jointly with AAAI, the AAAI/ACM SIGAI Doctoral Dissertation Award to recognize and encourage superior research and writing by doctoral candidates in AI. This new annual award will be presented at the AAAI Conference on AI in the form of a certificate and is accompanied by the option to present the dissertation at the AAAI conference as well as to submit a six-page summary to both the AAAI proceedings and the ACM SIGAI newsletter. We received 20 nominations for the inaugural award and selection is nearly complete. The award will be presented at AAAI 2021, for dissertations completed in the 2019-2020 academic year.

**Public Policy and AI Ethics**

Within ACM, we work with the ACM US Technology Policy Committee (USTPC) through the membership of our public policy officer Larry Medsker. He includes selected USTPC issues in his ACM SIGAI Public Policy blog posts. In 2019 he represented SIGAI in his dinner presentation on AI public policy and ethics at the USTPC board's annual meeting. The SIGAI Public Policy Officer participates in workshops and briefings in Washington, DC, that bring together legislators, staffers, corporate representatives, and non-profit organizations for discussions of policy making related to AI.

The bi-monthly posts on the AI Matters Public Policy blog in the past year commented on a wide variety of current topics, including:

* AI and face recognition and the USTPC public statement on face recognition
* A series of blogs on fundamentals of bias, discrimination, and fairness
* Human-centered design of AI systems
* AI ethics impacts on policymaking
* The role of data in AI and policy
* AI policy on privacy, accountability, and transparency
* Policymaking for AI and the workforce of the future
* VISA exemption for international students
* Frameworks and guidelines for principles of AI
* Federal government guidance and strategies on AI policy
* G20 and European activities in AI and data
* Global race for AI dominance

Outside of ACM, our public policy officer has participated in the executive committee of the IEEE Global Initiative on Ethics of Autonomous and Intelligent Systems. In June 2020, he became a Co-Editor-in-Chief for the new Springer Nature journal AI and Ethics.

**Education Initiatives**

It was another good year for expanding our Model AI Assignment archive (http://modelai.gettysburg.edu/). Our EAAI-2020 track was again successful, attracting 9 new accepted, peer-reviewed projects into our archive and presented at EAAI-2020 in New York, New York, USA on February 8 and 9 (https://pages.mtu.edu/~lebrown/eaai/index.html).

At EAAI, we announced our latest mentored undergraduate research challenge: AI for Gin Rummy competitive play under tight real-time constraints (http://cs.gettysburg.edu/~tneller/games/ginrummy/eaai/). Despite, or perhaps because of, the pandemic, we have had excellent participation with 50 mentors and students yielding 14 entries by the deadline on August 9th. We will be evaluating entries in the coming weeks, and hope to see a similarly good yield for the corresponding paper track at EAAI-21.

Following the success of the 2017 and 2018-2019 ACM SIGAI Essay Contest on the use of AI Technology we began preparation for the 2020-2021 version (to run during the school year). We are approaching this year with a renewed interest in the effects of AI Technology in Society in light of the changing world due to COVID-19. This year's contest is planned to be run in conjunction with ACM SIGCSE to involve more students from across AI and computer science broadly. We completed publishing all 8 winners from the 2018-2019 in AI Matters with Volume 5, Issue 3, 2019 issue.

**Newsletter**

The ACM SIGAI newsletter is distributed via the ACM SIGAI mailing list but also openly available on the ACM SIGAI website (at sigai.acm.org/aimatters/). AI Matters features articles of general interest to the AI community. ACM SIGAI publishes four issues of its newsletter AI Matters per year. Due to the pandemic, in 2020 we are only planning to publish three issues.

In the past year, we added a new editor-in-chief, Anuj Karpatne, who came to the position after the anticipated departure of Amy McGovern. We also welcomed a new column editor, Louise Dennis, who took responsibility for the News and Events column, succeeding Michael Rovatsos.

The recurring columns in AI matters have included:

AI Interviews (with interesting people from academia, industry, and government, led by the diversity officer),

AI Amusements (including AI humor, crossword puzzles, and games),

AI Education (led by the education activities officer),

AI Policy Issues (led by the public policy officer),

AI Buzzwords (which explains new AI concepts or terms),

AI Events (which includes conference announcements and reports, led by the conference

coordination officer)

AI Dissertation Abstracts and News from AI Groups and Organizations;

AI Latest Research Trends (where we invite recent recipients of competitive grants to write about their latest research projects, currently led by the co-editors in chief).

We are planning an additional recurring column dedicated to diversity in AI. AI Matters also published the winning entries from the 2018 ACM SIGAI Student Essay Contest on the Responsible Use of AI Technologies.

**Job Fair**

AAAI and ACM SIGAI have partnered to run the popular AAAI/ACM SIGAI Job Fair for the last six years. In lockstep with the growth of AAAI and the growth of the greater artificial intelligence and machine learning (AI/ML) community, our once-small job fair also grew. At AAAI-20, thirty-eight companies and universities formally attended, typically with a booth, team of recruiters, swag, and other representatives, increasing from twenty-six companies during the job fair's previous run in 2019, and twenty-one companies in the year prior to that. In 2021, Michael Albert (U Virginia), John Dickerson (Maryland), and Matthew Taylor (Alberta) will co-run the job fair which will be virtual-only for the first time. We own a dedicated domain at <https://aaaijobfair.com/> for the job fair. We typically provide a link on that site through which job-seekers, students, post-docs, practitioners, and maybe even a few faculty, can upload their resumes or CVs. We then share that data and contact information for the job-seekers with participants on the other side: prospective employers. This past year was no different, and we connected many hundreds of job-seekers to employers at the job fair.

**Planning for the Future**

The nature of the pandemic has changed many of our priorities, and also, of course, made it difficult for many of our volunteers to serve at the level of energy they have in the past, given the many different demands on their time. Nevertheless, we are excited by the direction of SIGAI. In particular, the new awards and outreach activities to both students, job-seekers, and the broader community we have worked on over the last few years. We also have several successful activities that are joint with other organizations, including many conferences co-sponsored with other ACM SIGs, conferences, the doctoral consortium, and the new dissertation award with AAAI, and continue to work with IFAAMAS and IJCAI on joint agreements related to some of our major awards. We view such collaborations as a highlight and a strength since they benefit the greater AI and computing communities. In the coming year, an area that we want to continue to focus on is improving our reach in industry and those interested in applied AI more generally. In addition, we are working to revamp our website and social media presence to offer more opportunities to engage with SIGAI, and more outreach into the broader community of people interested in Artificial Intelligence!

**SIGAPP FY’20 Annual Report**

**July 2019 - June 2020**

**Submitted by: Jiman Hong, Chair**

**SIGAPP Mission**

The SIGAPP mission is to further the interests of the computing professionals engaged in the development of new computing applications and applications areas and the transfer of computing technology to new problem domains.

**SIGAPP Officers**

 Chair - Jiman Hong, Soongsil University, Seoul, Korea

 Vice Chair – Tei-Wei Kuo, National Taiwan University, Taiwan

 Secretary – Alessio Bechini, University of Pisa, Pisa, Italy

 Treasurer – JungYeop (John) Kim, Utica College, USA

 Immediate Past Chair – Sung Y. Shin, South Dakota State University

 Web Master - Hisham Haddad, Kennesaw State University, USA

 ACM Program Coordinator, Irene Frawley, ACM HQ

**Status of SIGAPP**

The main event that took place within SIGAPP for this year was the Symposium on Applied Computing (SAC) in Brno, the Czech Republic after taking place in Limassol, Cyprus. However, due to the sudden COVID-19 outbreak, ACM SAC had no chance to be held in the ordinary in-person format this year. Instead, the organizing committee and all the authors did their best to keep the possibility to present research works and share comments and ideas in a new format, by means of an online web platform. More details about SAC will follow in the next section.

2019 Reliable and Convergent Systems (RACS 2019) which was held in Chongqing, China in October 2019 has started as a full sponsored conference of SIGAPP. RACS started as a SIGAPP in-cooperated conference and 10% partial sponsored conference of SIGAPP from 2012 and it has become SIGAPP's new fully sponsored conference from 2019 because the steering committee and the organizing committee have run RACS successfully over the past 7 years. RACS 2019 was also successful and has been beneficial for SIGAPP. SIGAPP has a 50% sponsored conference, 2020 Proactive and Experience in Advanced Research Computing Conference (PEARC 2020) which also took place virtually in July 2020 and a 10% sponsored conference, 2020 International Conference on Intelligent Computing and Its Emerging Applications (ICEA 2020) in December 2020.

SIGAPP will continue supporting RACS, PEARC, and ICEA in the coming years. In addition, ACR is now stabilized, and we have begun publishing quarterly electronically since spring of 2012. Ultimately, we would like to have ACR appear in the SCI (Science Citation Index). ACR contains invited papers from world-renowned researchers and selected papers presented by prominent researchers and professionals who attended the SAC, RACS, and PEARC. The selected papers have been expanded, revised, and peer-reviewed again for publishing in ACR. The next issue will be published in fall of 2020. We hope that ACR will serve as a platform for many new and promising ideas in the many fields of applied computing. It is strongly related to nearly every area of computer science, and we feel an obligation to serve the community as best we can. The papers in ACR represent the current applied computing research trends. These authors truly contribute to the state of the art in applied computing.

SIGAPP has a number of In-cooperation conferences, and the list of In-cooperation conferences are below (For reference, this year, due to the sudden COVID-19 outbreak, many conferences that had an in-cooperated relationship were canceled.):

* MEDES '20 The 10th International Conference on Management of Digital EcoSystems, Abu Dhabi, UAE, 11/02/20 - 11/04/20
* SMA ’20, [The 9th International Conference on Smart Media and Applications,](http://sma-2020.github.io/) Jeju, Korea, 09/17/20 – 09/19/20
* ICCA ’20, International Conference on Computing Advancements, Dhaka, Bangladesh, Jan 10 – Jan. 12, 2020
* MEDES '19, 11th International Conference on Management of Emergent Digital EcoSystems, Limassol, Cyprus, 11/12/19 - 11/14/19

**Status of SAC**

Through the expansion of benefits for our members, SIGAPP will continue to seek stable membership and strive to increase the number of members. SIGAPP’s strength and uniqueness among ACM SIGs provide a great opportunity for scientific diversity and offer a crosscutting of multiple disciplines within the ACM community.

The total number of SIGAPP members in 2020 is 485. Membership has increased over the past several years, but it has decreased temporarily in the last year. The officers look forward to continuing to work with the ACM SGB to further develop the SIG by increasing membership and converting the ACR to a new journal on applied computing. In addition, SIGAPP will develop mobile apps and utilize SNSs in the future to further expand and corroborate our interpersonal network and promote the relationship between members of SIGAPP.

Member benefits provided by SIGAPP are as follows.

* Subscription to Applied Computing Review (Published quarterly);
* Reduced registration fee for SIGAPP conferences (SAC, RACS);
* CD-ROM proceedings of SAC;
* Access to all SIGAPP material in the ACM Digital Library:
* SAC conference proceedings and Applied Computing Review (ACR).

Community benefits provided by SIGAPP are as follows.

* Sponsorship of SAC and RACS conferences;
* Partial sponsorship of PEARC conferences;
* Best Paper/Poster awards at the SAC, RACS, and PEARC conferences;
* Distinguished Service Award for outstanding service to SAC and RACS;
* Student travel support to SAC and RACS;
* SIGAPP Web site, including old electronic version of Applied Computing Review.

**Fund Balances**

The Fund balance has increased due in large part to the success of sponsored conferences including SAC and RACS in getting generous local supports, and the ACM DL revenue has continuously increased.

To aid the SAC community during the economic fallout caused by the global COVID-19 pandemic, SIGAPP and SAC have collectively decided to fully refund SAC 2020 registration fees. For this reason, SIGAPP's fund balance has decreased but SIGAPP is still financially sound and the fund balance is good evidence of the quality improvement of the SIGAPP.

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| --- | --- | --- |
| **Fiscal Year** | **Fund Balances** | **Digital Lib. Revenue** |
| **Amount** | **Amount** |
| July 2019~June 2020 | $757,248 | $55,543 |
| July 2019~June 2020 | $760,807 | $60,046 |
| July 2019~June 2020 | $721,005 | $50,545 |
| July 2019~June 2020 | $671,653 | $48,983 |
| July 2019~June 2020 | $692,366 | $51,688 |

**Status of SAC**

The 35th Annual edition of SAC has marked another successful event for the Symposium on Applied Computing even though it was held on an online web platform. SAC 2020 and all the authors did their best to keep the possibility to present research works and share comments and ideas in a new format, by means of an online web platform. The online web platform for participating in the online edition of SAC 2020 is ready and accessible at the following URL: ttps://acmsac.ecs.baylor.edu/#/app/

A paper-level chat was also provided to all attendees to place Q/A and comments, as it usually happens in face-to-face presentations. The online platform was kept open till mid-April 2020 and all the interactions have occurred on dedicated chats; any attendee was free to browse contents at her/his will and post comments on chats.

42 Tracks were finally accepted for SAC 2020. The prescreening and selections were made based on the success of those Tracks in the previous SACs as well as targeting new and emerging areas. The Call for Papers for these Tracks attracted 915 final paper submissions from 55 different countries. The submitted papers underwent the blind review process and 224 papers were finally accepted as regular papers for inclusion in the Conference Proceedings and presentation during the Symposium. The final acceptance rate for SAC 2020 is 24.48% for the overall track. In addition to the accepted full papers, 76 submissions that received high enough review scores were accepted as short papers for the Poster Program.

SAC 2021 will be held in and will be hosted by Chosun University and Jeonnam University, Korea, from March 30 to April 3, 2020. The website <http://www.sigapp.org/sac/sac2020/> has further details such as the symposium committee, technical tracks, and track chairs. SAC 2021 is being considered for Iasi, Romania. A decision by the SAC steering will be made soon. To date, 2021 SAC local host proposals have been submitted from Iasi, Romania, Sydney Australia, and Dublin Ireland.

**Significant Top 3 Programs (Events)**

1. Student Grants: We have implemented the Student Travel Award (STAP) for students who would otherwise have difficulty attending the sponsored conferences. The STAP continues to be successful in assisting the SIGAPP student members in attending conferences sponsored by the SIGAPP. Every year, 40~45 students have been granted awards, and $40,000~$50,000 has been spent for the students. We also hope to implement a Developing Countries Travel Award for faculty-level researchers from developing countries who would otherwise have difficulty attending the SAC conference to broaden participation either geographically. We may implement this award for the SAC 2021.

2. Chapters: Especially, far East Asian countries such as Korea, China, Taiwan, and Hong Kong are supporting the applied and convergent computing at the government level. Therefore, we have made new SIGAPP chapters in these countries and increase the number of SIGAPP members through the SIGAPP chapters. In the near future, SIGAPP Japan will be established to conduct various academic events with the existing 6 SIGAPP Chapters.

The SIGAPP will also support the joint seminar or small workshop between SIGAPP chapters of neighboring countries (e.g. SIGAPP Korea, SIGAPP China, SIGAPP Taiwan, and SIGAPP Hong Kong) to have the opportunity to share their research works.

3. Feedback from the Participants: SAC and RACS have received feedback from the participants every year. Steering Committee of SAC, RACS and SIGAPP officers try to improve SIGAPP and sponsored conferences including SAC and RACS by analyzing the result of the feedback.

**Membership Development Process**

Membership has decreased in some years and increased in some years. The officers look forward to continuing to work with the ACM SGB to further develop the SIG by increasing membership and converting SIGAPP ACR, Applied Computing Review to a new journal on applied computing.

Through the expansion of benefits for our members, SIGAPP has continued to seek stable membership and strive to increase the number of members. SIGAPP’s strength and uniqueness among ACM SIGs provide a great opportunity for scientific diversity and offer a crosscutting of multiple disciplines within the ACM community.

In addition, SIGAPP will develop mobile apps and utilize SNSs in the future to further expand and corroborate our interpersonal network and promote the relationship between members of the SIGAPP.

**Volunteer Development Process**

SIGAPP’s volunteer process has been successful, but we will continue to improve and establish our volunteer development process which is an essential issue for SIGAPP.

SIGAPP Executive Committee keeps looking for the new volunteer to serve the future SIGAPP officers. We have encouraged SIGAPP members to serve as a volunteer for SAC conference which is the flagship conference of the SIGAPP.

The development process is as follows:

* Encourage to submit the track proposal of the SAC, and server as the track chair
* Encourage to serve the SAC organizing committee member based on the successful track chair records.
* Encourage to be a candidate for the SIGAPP officer election.

In addition, we have tried to think about a career path for young researchers in their career development, including Career Award, and Young Researcher Award and a queue of service positions from TPC members, Track Chairs, to Conference Chairs. It will also attract people to join and work together in the SIGAPP.

# **SIGARCH Annual Report**

# **July 2019 – June 2020**

**Submitted by: Babak Falsafi, Chair**

Our annual reports from the previous EC discussed the launching of several new initiatives to address each of the three components of our mission statement – technical exchange, talent development and recognition, and outreach. These three components have a strong emphasis on diversity and inclusion with initiatives that have impacted communities across ACM and beyond. Over the last year, we solidified many of these initiatives and started new ones, thanks to volunteers from the broader community. In the coming year, besides solidifying existing initiatives, we plan to focus on specific ones that help improve the health of our conferences, our community, as well as the publication and conference organization processes. Like diversity and inclusion, we hope that these initiatives transcend beyond SIGARCH and help improve other SIGs and the broader computing community.

# **TECHNICAL EXCHANGE**

1. Meetings: SIGARCH (co-)sponsors a strong portfolio of conferences, many of which co-host a variety of highly attended specialized workshops and tutorials on leading edge topics. We highlight below two conferences: ISCA, the premier conference for computer architecture (co-sponsored with IEEE-CS TCCA) and ASPLOS, the premier multidisciplinary systems conference that brings together architecture, programming languages, and operating systems (co-sponsored with SIGPLAN and SIGOPS).

The 46th ISCA was held in downtown Phoenix in June 2019 as part of FCRC. The conference featured 15 workshops, 14 tutorials, three plenary FCRC talks of which one was given by James E. Smith, a computer architect and the 1999 Eckert-Mauchly Award winner, 18 technical paper sessions (with both record submissions of 365 papers and 62 accepted papers) and a conference panel. The credit for the success of ISCA 2019 goes to the record 821 attendees who came from all over the world to present and exchange research ideas, and to an equally passionate group of organizers and sponsors that resulted in over $225K in industrial sponsorship funds for the conference. With additional funding from SIGARCH, TCCA, and NSF, ISCA'19 provided an unprecedented amount of student travel grant support to a record 170 students.

ASPLOS’19 was held in Providence RI in March 2019. The conference featured a strong technical program with a record 74 papers and a record 351 paper submissions. The program included two keynotes, 12 workshops and tutorials with 380 attendees.

1. Annual SIGARCH visioning workshops: The visioning workshop program, created by Luis Ceze, Joel Emer, and Karin Strauss, seeks to catalyze and enable innovative research within computer architecture, and between computer architecture and other areas. Video recordings of the talks are professionally edited and are part of the ACM Digital Library and inaugurated the SIGARCH YouTube! channel. The 2019 edition of the workshop was co-held with ISCA’19 titled Agile and Open Hardware for Next-Generation Computing. The next workshop on Bio-inspired computing was scheduled for 2020 and may be postponed due to the pandemic.
2. ISCA industrial track: To boost participation from industry, there was a proposal at the ISCA’19 business meeting to create an industry track for product papers which was well received. A [recent](https://www.sigarch.org/publication-trends-at-isca/) CAT blog post studied 2000+ ISCA papers from 1973-2018 concluding a decline in participation from industry. While industrial product papers are of great value to our community, the guidelines for reviewing and evaluating such papers have to be revisited because they are fundamentally different from research papers with models or prototypes of proposed architectures that allow for flexibility in exploration. Many see great value in papers about working hardware that combine novel ideas that must work well together to help us understand the difficulty, cost, and performance of the ideas and the overall system. With TCCA, we accepted a proposal from David Patterson to put together an industry track for ISCA’20 with clear reviewing guidelines for product papers.
3. Climate change & virtual conferences: We have committed to provide statistics and analysis for our conferences as part of the SIGPLAN climate change initiative. This initiative by SIGPLAN has also culminated into a virtual conferences task force at the ACM level with a guidelines document that SIGARCH contributed to. These guidelines are now disseminated widely among all SIGs for the coming years. ASPLOS’20 was also among the first set of ACM sponsored conferences that went online with organizers writing a CACM blog about their experience.

# **TALENT DEVELOPMENT & RECOGNITION**

1. ACM/IEEE Eckert-Mauchly award: This is the most prestigious award in computer architecture given for contributions to computer and digital systems architecture. The 2019 recipient was Mark Hill for “contributions to the design and evaluation of memory systems and parallel computers.”
2. SIGARCH Maurice Wilkes award: This is the most prestigious award given to a researcher in the first 20 years of their career and went to Onur Mutlu for “innovative contributions to efficient and secure DRAM systems.”
3. SIGARCH/TCCA influential ISCA paper award: This award recognizes a paper from the ISCA 15 years earlier. The 2019 recipient was “Transactional Memory Coherence and Consistency” by Lance Hammond, Vicky Wong, Mike Chen, Brian D. Carlstrom, John D. Davis, Ben Hertzberg, Manohar K. Prabhu, Honggo Wijaya, Christos Kozyrakis, Kunle Olukotun.
4. ASPLOS influential paper award: This award recognizes an ASPLOS paper from 10 or more years ago. The 2019 recipient was “Hoard: a scalable memory allocator for multithreaded applications” by Emery D. Berger, Kathryn S. McKinley, Robert D. Blumofe, and Paul Wilson from ASPLOS 2000.
5. SIGARCH Alan D. Berenbaum Distinguished Service Award: This award is presented annually to an individual who has contributed important service to the computer architecture community. The 2019 recipient was Margaret Martonosi for “outstanding leadership in recruiting, retaining, and advancing women and underrepresented minorities and raising awareness of the importance of diversity to the computer architecture community.” Eileen Lach, Alan Berenbaum’s partner, presented the award to Margaret.
6. SIGARCH/TCCA Outstanding Dissertation Award: This award is presented annually to recognize excellent thesis research by doctoral candidates in the field of computer architecture. The 2019 recipient was Yu-Hsin Chen from MIT (co-advised by Vivienne Sze and Joel Emer), for his dissertation entitled “Architecture Design for Highly Flexible and Energy-Efficient Deep Neural Network Accelerators.” The award citation was “For contributions to efficient and flexible dataflows and architectures for deep learning acceleration.” The honorable mention went to Alexandros Daglis from EPFL (co-advised by Babak Falsafi and Edouard Bugnion) with the dissertation entitled “Network-Compute Co-Design for Distributed In-Memory Computing” and the award citation “For contributions to network-centric server architecture for in-memory datacenter services.”
7. CACM Research Highlights: SIGARCH has a standing committee of four persons to select papers to nominate as CACM Research Highlights. The papers are solicited through a survey of conference attendees as well as nominations by Program Chairs of the most prestigious conferences sponsored by SIGARCH. These candidates are then forwarded to the CACM Editorial Board to make the final decision. The nominated papers are also listed on the [SIGARCH website](https://www.sigarch.org/benefit/awards/cacm-research-highlights) to reflect the high prestige of the papers being selected. There were two papers nominated to the CACM Editorial Board in 2019: “[Boosted Race Trees for Low Energy Classification](https://dl.acm.org/doi/10.1145/3297858.3304036)” by Georgios Tzimpragos, Advait Madhavan, Dilip Vasudevan, Dmitri Strukov, Timothy Sherwood from ASPLOS 2019, and “[Cryogenic Computer Architecture Modeling with Memory-Side Case Studies](https://dl.acm.org/doi/10.1145/3307650.3322219)” by Gyu-hyeon Lee, Dongmoon Min, Ilkwon Byun, Jangwoo Kim from ISCA 2019.
8. Honoring retirees: Jointly with TCCA, we launched a program in 2017 to honor at ISCA the contributions of members of our community who are retiring or have recently retired. In 2019, we honored the retirement of David Wood, Professor Emeritus from the University of Wisconsin, past SIGARCH chair from 2011 to 2015, and vice chair from 2007 to 2011.
9. Remembering recently departed members: With TCCA, we also launched a program at ISCA in 2017 to remember members of our community who have passed away. We mourned the passing of Sudhakar Yalamanchili, Professor of Electrical and Computer Engineering at Georgia Tech. Hyesoon Kim and Moin Qureshi, colleagues of Sudha at Georgia Tech provided a tribute at ISCA’19.
10. Student mentoring: We continued our “Meet a Senior Architect” mentoring program at ISCA’19 under the leadership of Joel Emer. The program matches students with mentors (through questions asked in the conference registration form), providing students the opportunity to meet 1- on-1 with a senior architect for about half an hour at the conference. Starting with 17 mentors and 33 students in 2016, this year the program attracted over 100 mentors and 182 students. The program has been growing and has moved on to virtual platforms for the 2020 virtual conferences. We are expanding the mentoring program to other conferences together with a student-led initiative to extend the mandate of mentoring to include guidance through the PhD program.
11. Women in Computer Architecture (WICArch): WICArch was created in 2018 as part of SIGARCH to build a community of female architects, celebrate their accomplishments and boost talent development for women in architecture. Natalie Enright Jerger (the current SIGARCH vice chair) chairs the WICArch subcommittee. WICArch has launched a number of initiatives including a webpage showcasing female architects and their profiles, a flyer widely publicizing women in computer architecture (and systems) for the academic recruiting season, a strong Slack community of over 232 participants and a monthly webinar series. In 2019, WICArch also supported diversity and inclusion initiatives including financial support for the CRA-W Grad Cohort for Women Workshop which had 973 applicants with 418 attending. The CRA initiative is broadening its charter and name to the Grad Cohort for Widening Participation in 2020 to include workshops for underrepresented minorities and persons with disabilities.

# **OUTREACH**

1. Computer Architecture Podcasts: Boris Grot, our Communication’s Team chair launched the Computer Architecture Podcasts in 2019 with Suvinay Subramanian and Lisa Hsu as the editors to interview leading figures in the architecture community about cutting-edge topics in architecture, their vision and career experiences. The podcasts are available in standard formats and are hosted at [comparchpodcast.podbean.com](http://comparchpodcast.podbean.com/). The first interview was with Kim Hazelwood from Facebook about emerging systems for machine learning.
2. Computer Architecture Today (CAT): CAT has emerged as a successful platform for our community members and those in related fields to discuss diverse topics of interest, thanks to the dedicated efforts of the blog editor Alvin Lebeck with the help of the associate blog editor, Vijay Reddi. As of July 2019, the incoming CAT blog editor is Rajeev Balasubramonian together with Vijay Reddi remaining as the associate editor. This year the blog featured 44 articles with over 110,000 views.
3. Communication Team: We have a new Communication Team with Boris Grot as the chair, Samira Khan as the content editor (for the website, announcements, and the newsletter), and Jayneel Ghandi as the video editor in charge of the SIGARCH YouTube! Channel. Adrian Sampson remains as the social media editor. The YouTube! Channel which was originally created to host the visioning workshop talks is now a platform to host all recordings for the virtual conferences starting with ASPLOS’20. Boris Grot also helped ASPLOS’20 organizers to replicate the [iscaconf.org](http://iscaconf.org/) efforts and create the [asplos-conference.org](http://asplos-conference.org/) to host the ASPLOS websites. We will be moving prior ASPLOS websites to this central platform.

# **GRANTS & SUPPORT PROGRAMS**

1. Talent development grants: We have launched financial support for initiatives aimed at developing talent, improving well-being, and advancing diversity and inclusion for the computer architecture community. The Undergrad Architecture Mentoring Workshop (Uarch) was inaugurated at ISCA’19 and targeted boosting participation from undergrads in parts of the world and institutions with lower average participation at computer architecture conferences. The workshop raised $56K to host 49 students from 26 colleges and universities from around the world. These programs will be expanded in 2020 to include workshops for early-career academics and student mentoring.
2. Student travel grants: Student travel grants for conferences is our flagship benefit for student members. All conferences where SIGARCH co-sponsors at a level greater than 33% are eligible for student travel grant support at levels of $5K-$20K. Survey results in 2016 indicated that 39% of the respondents said they would come to ISCA only if they received some travel grant and 5% of the students used personal funds to cover the difference between actual costs and these travel grants. In 2019, we continued supporting our student members through the travel grants at sponsored conferences.
3. Companion assistance and childcare grants: SIGARCH was a pioneer in supporting travel grants for companions for childcare or disability support for those attending professional meetings while traveling. These have expanded to supporting on-site childcare. We are pleased to continue seeing an increase in applications for these grants as well as to see IEEE TCCA supporting its own similar program.

# **VIOLATIONS OF CODE OF ETHICS & PUBLICATION PROCEDURES**

In June 2019, a University of Florida student and an ISCA’19 author Huixiang Chen died by suicide. In connection with this tragedy, and elsewhere in the broad computing community, there have been disturbing allegations of multiple violations of code of ethics and review processes in multiple conferences in computer architecture and across computing. These allegations ranged from the student author’s suicide note alleging that he was coerced by his advisor to hide flaws in a paper that was accepted to appear in ISCA’19 and culminated in revelations that the reviewer identities of the paper in question and their online discussions were compromised together with the entire set of submitted papers from ISCA’19 and HPCA’19 (an IEEE-sponsored conference) were downloaded into the student’s laptop. These allegations breach the trust and confidence our members place on the integrity of our review processes and our individual members to follow our code of ethics. There have been multiple calls to cancel conferences in light of these allegations in 2019 and 2020.

We have been working together with ACM in accordance with their policies. These policies call for the utmost confidentiality of the process, preclude transparency, require those bringing forward allegations to identify themselves and do not lend themselves well to a rapid response. We have been making the case to ACM to launch an investigation with independent investigators and more resources, which eventually led to ACM announcing an independent investigation with IEEE, impaneling the Joint Investigative Committee (JIC) with an external legal counsel and an external investigator.

We believe that ACM has strong policies for publication ethics, but there is room for improvement in the processes pertaining to reporting, investigation, and enforcement of sanctions for violations of these policies. We have been working to convey to ACM leadership the need to improve these processes in a way that empowers whistleblowers and deters violators. This is an issue not just for SIGARCH but for all computing research communities. These process improvements are taking longer than we would like, but we in SIGARCH are committed to working with ACM to start bringing change in 2020.

1. Extending CARES’ mandate: SIGARCH formed CARES, a committee to aid reporting of sexual harassment at SIGARCH and SIGMICRO events in consultation with ACM. The program has since been emulated by other communities and has now led to the creation of the ACM diversity and inclusion council. The CARES movement was also recognized by CRA with the Distinguished Service Awards in 2020. In 2019, SIGARCH worked together with ACM to extend CARES’ mandate to include violations of publication policies and code of ethics with an updated statement on the website. Ethics guidelines and best practices: Both ASPLOS and ISCA this year announced clear ethics guidelines to all program committee members, external reviewers, and authors, and they avoided the use of bidding in the paper assignment process. Boris Grot and José Martínez on the EC are working together IEEE TCCA EC members to update and enhance published best practices for conference organizers on our website for SIGARCH sponsored conferences that will provide explicit guidelines for conference organizers with regards to code of ethics and review integrity.
2. Stronger HotCRP security and conflict detection: In 2019, Margaret Martonosi (a pastCARES co-chair) contacted Eddie Kohler the author of HotCRP to turn on logging for our conferences to track all downloads, a feature that was previously disabled to reduce storage overhead but can provide concrete evidence to ACM in reporting violations. HotCRP also now offers two-factor authentication for enhanced security. We are currently working on conflict resolution software for authors to help program chairs with paper assignment.

# SUMMARY

SIGARCH remains a financially healthy and vibrant organization (thanks in part to our Treasurer, Karin Strauss and our EC members overseeing the conference budget approvals, Martha Kim, and José Martínez) with a broad and enthusiastic membership and committed leadership. We restructured the SIGARCH EC under the leadership of Sarita Adve, the past chair, and the enthusiastic support of the broader community to delegate initiatives to EC members and let them lead them to fruition. We are continuing with this new structure to launch and implement new programs for SIGARCH. We also gratefully acknowledge the ACM staff, notably our past liaison Ashley Cozzi, and our new liaison J. C. Peeples, for their support and for graciously handling the increased workload.

Respectfully submitted,

Babak Falsafi, Chair

On behalf of the SIGARCH Executive Committee

Sarita Adve

Joel Emer

Natalie Enright Jerger

Boris Grot

Martha Kim

José Martínez

Karin Strauss

**SIGBED Annual Report**

**July 2019 – June 2020**

**Submitted By: James H. Anderson, Chair**

**Awards**

SIGBED offers several awards to recognize outstanding work by members of the community. Details about the awards, selection processes, and nomination deadlines can be found on SIGBED's awards page, <https://sigbed.org/awards/>.

The *Paul Caspi Memorial Dissertation Award* is a SIGBED award established in 2013. This award recognizes outstanding doctoral dissertations that significantly advance the state of the art in the science of embedded systems, in the spirit and legacy of Dr. Paul Caspi's work. In conjunction with CPS-IoT Week in spring 2020, this year’s award was given to Daniel J. Fremont, UC Berkeley, USA, for his thesis *Algorithmic Improvisation*. (In 2018 and 2019, this award was not given due to a lack of nominations. We addressed this issue by soliciting nominations earlier.)

The *SIGBED Early Career Award* was established in 2017. This award recognizes outstanding contributions by early career investigators in the area of embedded, real-time, and cyber-physical systems. In conjunction with CPS-IoT Week in spring 2020, this year’s award was given to Nan Guan of Hong Kong Polytechnic University.

The *SIGBED Frank Anger Memorial Award* is a student award in the name of the late Dr. Frank Anger to promote cross-disciplinary research between embedded systems and software engineering. SIGBED solicits applications from qualified student members. The submission deadline is usually at the end of August. Unfortunately, this award has not been given for several years due to a lack of nominations. We are currently soliciting nominations for this year’s award and are attempting to address the prior lack of nominations by advertising for nominations more aggressively.

SIGBED also sponsors the *SIGBED-EMSOFT Best Paper Award*. This annual award is presented to the individual(s) judged by an award committee to have written the best paper appearing in the EMSOFT (Embedded Software) conference proceedings. The selection criteria are the scientific quality of the paper and the exposition of the ideas.

The 2019 SIGBED EMSOFT Best Paper Award was given to the paper “Deriving Equations from Sensor Data Using Dimensional Function Synthesis,” by Sam Willis, Youchao Wang, Vasileios Tsoutsouras, and Phillip Stanley-Marbell. The selection process for the 2020 SIGBED-EMSOFT Best Paper Award is currently underway, and the winner will be announced during ESWEEK 2020 in September this year.

This year, we introduced a new award program, the *ACM SIGBED Scholars Program*. The purpose of this program is to recognize promising young scholars with an interest in the Internet of Things, embedded systems, or cyber-physical systems. This program is open to students of Computer Science or Computer Engineering currently enrolled in an undergraduate program, or who have received their bachelor’s degree in the past year. No prior research work in the area is required. In selecting awardees, an emphasis is placed on increasing diversity. The first group of SIGBED Scholars was selected in conjunction with CPS-IOT Week 2020. They are: Bhawana Chhaglani from Guru Gobind Singh Indraprastha University, India; Ameya Daigavane from Indian Institute of Technology, Guwahati, India; and Charlotte Dorn from UNC Chapel Hill. These scholars were awarded full support to attend CPS Week. Unfortunately, the advent of COVID-19 reduced this event to be virtual only. It is our intent to still provide the selected winners with support to attend a future SIGBED-sponsored conference when the COVID-19 crisis is over if this is feasible.

**Student Travel Grants**

To promote excellence in embedded systems education and research, SIGBED offers travel grants for students to attend ESWEEK and CPS-IoT Week, the premier forums in the areas of embedded and cyber-physical system design areas. The travel grants can be used to partially cover conference registration and/or hotel accommodation. The SIGBED leadership views travel grants as one of the best investments into the SIG future and the budget allocation for travel grants has been increased every year.

* ESWEEK 2018 in Torino, Italy: SIGBED awarded 15 grants, and the total amount of travel awards was $15,000.
* CPS-IoT Week 2019 in Montreal, Canada: We received 15 applications for support, out of which 11 were selected according to the published criteria. However, only 7 grants were funded, because 4 applicants were not able to obtain visas to attend the event. A total of $5,200 was awarded.
* ESWEEK 2019 in New York, USA: A total of 22 grants were awarded, of which 16 grants were funded by SIGBED (the remaining were funded by SIGDA). The total amount of travel awards SIGBED supported was $15,045.
* CPS-IoT Week 2020 (virtual): Since the conferences were completely virtual and registration was free for attendances, no travel grant was needed.
* ESWEEK 2020 (virtual): We anticipate that registration for ESWEEK conferences will likely be not free, and we plan to continue to provide student travel grants to help students cover the cost of conference registration.

**ACM SIGBED Student Research Competition**

Besides regular student travel grants, SIGBED also offers funding support for undergraduate students to attend the ACM SIGBED Student Research Competition (SRC), which was organized by ESWEEK for the first time in 2019. The SRC is a forum for undergraduate and graduate students to share their research results, exchange ideas, and improve their communication skills while competing for prizes. In ESWEEK 2019, three undergraduate students were selected to receive the grants, and a total of $1,587.23 was awarded.

In addition to SIGBED grants, other sources of support were available to attendees as well.

**Diversity Grants**

Besides travel grants, SIGBED also offers several other types of support that aim to promote diversity and to better support researchers within the community. SIGBED has provided $1,000 towards support for an N2Women Young Researcher Fellowship award. This award supported attending a networking event that has been organized at CPS-IoT Week 2019 by Networking Women (N2Women) to foster connections among women in communications and networking research. Furthermore, SIGBED also awarded a total of $2,450 in childcare financial support for researchers with young children to attend the ESWEEK 2019 conferences. In addition, SIGBED funded the Women at ESWEEK 2019 Dinner event, with a total amount of $628.03.

Moving forward, SIGBED is committed to continue providing (and further increasing) funding to foster diversity and improve the representation of women and underrepresented groups, as well as to better support researchers with family and children in the embedded systems community.

**New SIGBED Website and Blog**

The old SIGBED website was beginning to show its age. To address this issue, we created an entirely new website with a more modern look. Please see <https://sigbed.org/>.

In addition, SIGBED used to produce a quarterly publication called *SIGBED Review*. There was a feeling on our Executive Committee that this publication was also showing its age and was probably not being read by many people. After much discussion, we decided to replace *SIGBED Review* with a new blog with contributions by highly active researchers that reflect cutting-edge work on embedded systems being done today. Please see <https://sigbed.org/blog/>.

In addition to the new blog, the SIGBED-MEMBERS mailing list is used for announcement of events of interest to the community.

**Sponsored Events Serving our Technical Community**

SIGBED continues to sponsor two major federated conferences, CPS-IoT WEEK (comprised in 2020 of HSCC, ICCPS, IPSN and RTAS, and three guest conferences, IC2E, ICFC and IoTDI) in the spring and ESWEEK (comprised of CASES, CODES+ISSS, and EMSOFT) in the fall, as well as several other leading conferences in the embedded systems community, including CHASE, LCTES, MEMOCODE, NOCS, and SenSys. “In cooperation” status was approved for Ada-Europe 2020, AEiC 2020, ASPLOS 2020, EWSN 2020, SCOPES 2020, and SENSORNETS 2020.

**Events Highlighting New Areas of Interest at Conferences**

The main conferences supported by SIGBED are invariably concerned with identifying new directions and challenges for the research community and related industries. A key mechanism for this is through keynote presentations offered to conference attendees by luminaries in key related areas.

ESWEEK 2019 (which preceded COVID-19 and was held in person) featured the following keynotes on emerging horizons in embedded systems:

* “High Performance Computing in a World of Embedded Intelligence” by Steve Keckler of NVIDIA.
* “Health Monitoring with Machine Learning and Wireless Sensors” by Dina Katabi of MIT.
* “Cyber-Physical-Human Systems: Opportunities and Challenges” by Pramod Khargonekar of UC Irvine.

Similarly, CPS-IOT WEEK 2020 (which unfortunately became a virtual event) featured keynotes discussing new CPS applications and significant challenges:

* “AI - Quest for Deep Learning” by Dacheng Tao of the University of Sydney.
* “Safe Autonomy with Deep Learning in Feedback Loop” by George J. Pappas of UPenn.

**Recognitions**

SIGBED Member Tarek Abdelzaher was named ACM Fellow in 2019. SIGBED Member Wang Yi received the IEEE TCRTS Award in 2019. SIGBED Member Reinhard Welhem received the IEEE TCRTS Award in 2020.

**Issues**

Like all other SIGs, COVID-19 has put a damper on our activities. For example, we put significant effort into creating the new SIGBED Scholars program and were very excited for the three selected young scholars to attend CPS-IOT Week this past spring in Sydney, Australia. It was very disappointing for us when that event had to transition to be a virtual-only event.

**SIGCAS Annual Report**

**July 2019 – June 2020**

**Submitted by: Doug Schuler, SIGCAS Chair**

1. Awards that were given out

We did not give out any awards this year. We are aware that it is an area we need to work on. The COMPASS Conference has identified a variety of awards that it would like to award each year and which SIGCAS supports.

(i) Lifetime Achievement Awards

(ii) Rising Star Awards

(iii) Test of Time Awards (papers with highest citations)

(iv) Best Practitioner Awards (which forms a core part of the COMPASS community)

We expect further consideration of moving the COMPASS Lifetime Achievement and Rising Star awards to regular SIGCAS awards.

2. Significant papers on new areas that were published in proceedings

The proceedings of the third ACM COMPASS (Computing and Sustainable Societies) was published in July. We plan to republish the most significant papers in the SIGCAS newsletter late this year. COMPASS has also submitted a request for a regular ACM journal.

3. Significant programs that provided a springboard for further technical efforts

SIGCAS continues its close ties with the SIGCSE community. In 2019-20, our collaborations at the primary SIGCSE conference included a pre-conference workshop on Free and Open-Source Computing and a pre- conference workshop on Computing for the Social Good in Education that were two of the few events held at SIGCSE 2020 before the conference was cancelled because of the pandemic. A CSG-Ed special session was also accepted/scheduled for the SIGCSE TS but was cancelled.

We have also a new editor in chief of the Newsletter and a new SIGCAS Webmaster. Both appointees/volunteers are breathing new life into their respective areas.

4. Innovative programs which provide service to some part of your technical community

SIGCAS was closely involved with the ACM Committee on Professional Ethics and contributed to a variety of discussions of the new ACM Code of Ethics and Professional Ethics.

5. Events or programs that broadened participation either geographically, or among under-represented members of your community

The planning for the ACM COMPASS represented a significant effort to broaden participation geographically as the conference was originally planned for Ecuador. The conversion to an online format permitted for geographically broad participation and will likely remain a core part of the COMPASS planning.

6. A very brief summary of the key issues that SIG membership will have to deal with in the next 2-3 years.

The SIG will need to explore its place within the wide variety of endeavors that explore the relationships between computing and society, including (just with the ACM): The ACM Committee on Professional Ethics, the ACM Fairness, Accountability, and Transparency (FAccT) community, and the ethics subcommunities of both SIGAI and SIGCHI. We are particularly interested in building our connections with the computing and sustainable societies group.

The SIG plans to further develop a collection of historical resources about computing and society and, as importantly, provide them in a way that will support future critical discussion of computing and society.

As noted above, the COMPASS portion of SIGCAS is growing enthusiastically. We expect that our membership will be involved in considering which aspects of COMPASS will deserve most of our attention.

There has been a significant transition in SIG leadership this year, with three EC members stepping down and only the past chair staying on board. We look forward to seeing what the new leadership brings to SIGCAS.

The new leadership indicates that they planning to work with the membership to understand what they would like to get from SIGCAS. It is quite likely that we will also host a virtual meeting with our members. We are also planning to think more holistically about our relationship with conferences. We are also adding new features to the newsletter to provide new opportunities for writers and readers. Finally, we have set a goal of adding 100 new members by the end of 2021.

**SIGCOMM Annual Report**

**July 2019 - June 2020**

**Submitted by: Roch Guerin, Chair**

SIGCOMM is ACM's professional forum for the discussion of topics in the field of communications and computer networks, including technical design and engineering, regulation and operations, and the social implications of computer networking. SIG members are particularly interested in the systems engineering and architectural questions of communications.

SIGCOMM continues to be a thriving organization serving a broad community of researchers from both academia and industry interested in all aspects of computer networking. We sponsor several successful, single-track, high-impact conferences, several of them in cooperation with other SIGs. There are several highlights to report from the past year.

**Education Initiatives**

With the COVID-19 pandemic having massive effects on students across the globe, our educational efforts became more important than ever. The SIG launched an aggressive effort to construct online platforms, virtual collaboration engines, and venues to support students and learning activities. In August, the SIG created a new workshop entitled "Teaching and Learning Computer Networking During the Pandemic, and Beyond". The workshop, organized as an interactive discussion, brought together teachers and faculty across the world to discuss experiences, lessons learned, community resources, pedagogy, and other topics with the goal of improving and supporting on-line networking education. The workshop received widespread and diverse participation, bringing together over 200 participants from over 35 countries, across a variety of institutions (R1/R2, teaching universities, etc.) and with instructors who taught a variety of networking topics and classes. The workshop was rated as either "very good" or "good" by every single participant who took the survey at the end of the workshop, with most participants also indicating the event substantially improved their teaching, helped them learn to teach online, and helped them learn about platforms to support their teaching.

With students at home and separated physically from their home institutions there is danger of them becoming isolated from both educational and support structures critical to their learning. To address this The SIG has also launched multiple virtual environments to support students during the pandemic. For example, we have launched an ACM SIGCOMM Slack workspace. Slack is a collaborative platform which includes chat functions as well as the ability to share and interact on files and activities. The workspace has been a rousing success, growing to over 1,400 members, and maintaining regular and ongoing discussions on a variety of networking and network-education related topics. The platform also contains a channel run by a licensed social worker from the University of Illinois at Urbana-Champaign Counseling Center to provide emotional and wellness support to students during these challenging times.

A third challenge encountered in the era of COVID-19 is supporting virtual conferences. One thing that is becoming clear is students are becoming more isolated at these events. The ability to run into each other in lunch lines, catch the authors after events, the happenstance meetings in hallways, seem like small things but are so crucial to the creation of new ideas and strengthening the social and intellectual bonds that make up our community. Students and new faculty are especially prone to this given the early stage of their careers. To address this, the SIG was heavily involved in supporting interactions at ACM SIGCOMM 2020. The SIGCOMM conference has long held a social event of some sort to encourage meetups, and since doing this in person was not possible, the SIG created a virtual tour of New York City (the former location of the conference before COVID19 hit), where students and faculty can mingle along with a tour guide showing them sights. The SIG also created a Networking Pictionary event where students and professionals draw and try to guess networking words, like "ECN" or "router". The SIG also created a "speed networking" event to pair up students and new faculty with more senior faculty and industry professionals for one-on-one meetings on zoom. The SIG also created "electronic hallways" using the Mozilla Hubs platform, and an “electronic flyer” to advertise students attending the conference. These platforms were well received and led to increased interactions at the conference.

In addition to these efforts, the SIG has done a few other things as well. First, the SIG has worked with the ACM SIGCOMM Computer Communications Review (CCR) to create a new track on education. Several education papers have been submitted and accepted for publication. The CCR website which publishes the papers tracks views each paper gets, and we found that the education papers received the highest number of views of all papers in the issue, for every issue since the education track was created (two issues so far). Second, the SIG leveraged community input to develop list of the most important papers in the field of networking and placed the list for public use on Wikipedia[[1]](#footnote-1). Third, the SIG has started an interview series with "Great Educators" in the field of networking - one interview has taken place so far, and we expect to conduct interviews at a slow rate over the next year for periodic release in CCR.

**Conferences and associated support**

The SIG sponsors an eponymous flagship conference and is the sole sponsor of the following conferences: CoNEXT, Information-Centric Networking (ICN), and the HotNets Workshop. The SIG also co-sponsors the following conferences: Internet Measurement Conference (IMC), SenSys, ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS), Symposium on SDN Research (SOSR), and ANRW, the joint ACM, ISOC, IRTF Applied Networking Research Workshop.

In addition to conferences we sponsor or co-sponsor, we are in-cooperation with a number of events, including the International Conference on Network and Service Management (CNSM), the International Teletraffic Congress (ITC), the USENIX Symposium on Networked Systems Design and Implementation (NSDI), the ACM Conference on Embedded Networked Sensor Systems (SenSys), the ACM Multimedia Systems Conference (MMSys), the Network Traffic Measurement and Analysis (TMA) conference, the International Conference on Future Internet Technologies (CFI), besides the COMSNETS, AINTEC, and APNET conferences.

Continuing our policy of rotation among regions on a 3-year cycle, our flagship conference was held in August in Beijing, China. Thanks to the population size of China, attendance was one of the highest ever with close to 1200, largely driven by strong local participation. This relative success notwithstanding (increasing involvement from Chinese colleagues was a major motivation behind the selection of Beijing), the organization of the conference has been a constant challenge. Some of it is attributable to communication difficulties and cultural differences, but there have also been unanticipated problems caused by local rules and regulations and lack of experience in dealing with them, both at the level of the SIG and that of ACM. Although several lessons were learned by going through the process of having SIGCOMM 2019 in Beijing, the experience made us more acutely aware of the many challenges involved in organizing a large conference in China. If we are to hold another of our sponsored conferences in China, it will be important to draw on this experience to try to avoid some of the mistakes made this time around, and make sure that organizers step into it with open eyes.

While at the time of this writing, SIGCOMM 2020 has not happened yet, this edition was due to take place in New-York, USA, but will take place virtually instead. Given the limited costs of holding a virtual conference, we do not expect any financial issues. Further, given that the number of accepted papers has increased by about 65% this year, we expect a generous attendance, though unlikely at the level of the 2019 edition, but more in line with previous years. Due to the COVID-19 situation, and issues with the organizing committee, the organization this year was challenging, as it was last year, but for different reasons, mostly related to poor commitment and internal coordination of the organizing committee. We learned some lessons regarding the deadlines that need to be enforced on the organizers to ensure that irrespective of how the conference is taking place (physically or virtually), the paperwork, budget, and contracts are in place early enough. The new conference coordinator has already taken steps to improve this part of the process and increase the accountability of the conference organizers towards the SIGCOMM executive committee.

On the financial front, the 2019 edition of the SIGCOMM closed with a small deficit of ~$17k, which given the conference surge in size and the challenges of a first-time organization in China is not unexpected. This year, most other SIG (co-)sponsored conferences registered surpluses, so that the SIG’s finances continue to be strong. This has allowed us to continue to offer and even expand a strong travel grant program with a special focus on increasing diversity. In particular, as discussed in the “Diversity and Outreach” section, the SIG has expanded its support for N2Women and entered in an agreement with them to, in addition to the dinner held each year at the SIGCOMM conference, now also have one N2Women workshop to be held at one of the SIG’s sponsored or co-sponsored conferences. In addition, after ending our support for the LANC conference, we rebooted our efforts to seek greater participation from South America by launching the LANCOMM student workshop that was held last year with the SBRC conference in Brazil.

More generally, we continue to foster the success of our sponsored conferences through generous general student travel support (totaling close to $100k per annum) as well as invited speaker travel funds and special diversity grants to facilitate participation in PC meetings by members from under-represented areas.

In addition, the SIG continues to financially support, i.e., through a range of (travel) grants aimed at students and/or junior faculty, several regional conferences in computer networking. The current set of regional conferences we support financially includes COMSNETS, a major networking conference in India, the Asian Internet Engineering Conference (AINTEC), and a new conference focused on the Asia-Pacific region, APNET, whose first edition was held in Fall 2017. COMSNETS has been quite successful and has become a strong regional event in its own right, while AINTEC has not fully realized its original goals of broadening participation in the Asia-Pacific region, in part because the conference has remained anchored at the same location in Thailand. We had previously given feedback to the organizers recommending that they explore alternative locations, but although they plan to hold next year’s conference outside of Thailand, they were not able to do so this year. As a result, the SIG shifted its support to that we afford to local conferences and asked that the support be in the form of student travel grants. Finally, the SIG continued its support for the development of a research community in Latin America, through LANCOMM, a student workshop. The SIG would have provided support for both student travel grants as well as invited keynote speakers for LANCOMM'20, but unfortunately the workshop could not be held due to the COVID-19 situation in Brazil.

The SIG also supports a handful of summer schools with grants. This year, we provided grad cohorts 18K, the APnet conference with 10K, and the ANWR’20 workshop co-located with RIPE with 3K.

In addition, the SIG offers support for special initiatives upon request. One such example is travel grants in support of a “Shadow PC” for the 2019 IMC conference.

**Miscellaneous.** We are continuing the practice of waiving the SIGCOMM contingency share for our fully sponsored conferences to give the organizers more flexibility and allow them to keep registration fees as low as possible. This may, however, change in 2020-2021 for conferences that will target an in-person component because of the greater uncertainty caused by COVID-19.

On the logistics front, the SIG switched from using MeetGreen to AMS to provide administrative support to our volunteers, and we are currently reviewing the range of services we offer to our volunteers through AMS. We contemplated migrating our website from ACM to a site professionally supported by AMS. This would have been at an added cost but was motivated by a recurring set of problems in the area of security and reliability with the service currently offered by ACM. It was, however, decided to put this on hold, both because the added cost ended-up being higher than anticipated and the COVID-19 introduced a new level of financial uncertainty that deterred us from adding a new recurring expense to the SIG’s budget

### **Newsletter**

The SIG’s newsletter, Computer Communications Review (CCR), continues to publish four issues per year. Since 2016, CCR has been published entirely on both the ACM Digital Library and at https://ccronline.sigcomm.org. We publish two types of articles: technical papers and editorial contributions. The editorial contributions range from meeting reports to reflections on the evolution of the field. Technical papers are peer-reviewed by members of the editorial board and external reviewers. This year, we also created a new track for educational papers, handled by the SIGCOMM education director, who is the CCR area chair in charge of these papers. All submissions for the educational track are reviewed by the area editor in charge of the track, as well as by the editor of CCR.

The highlight of this year’s CCR was the publication of the 50th anniversary of SIGCOMM. SIGCOMM’s 50th birthday was celebrated at the SIGCOMM conference in Beijing in August 2019 with a special panel. This fiftieth birthday was a good opportunity to look back at the evolution of both the networking field and the SIGCOMM community over half a century. Earlier this year, after a very interesting teleconference with Vint Cerf, the editor contacted all the former SIGCOMM chairs and CCR editors to share their reflections on the evolution of our community. Many of them wrote an invited editorial. As our community is driven by scientific innovations, former recipients of lifetime SIGCOMM awards, test-of-time awards, and best paper awards, were encouraged to also share their vision with an invited editorial. Thirty-three papers published in this special issue (October 2019) addressed a wide range of topics.

The editor in charge of CCR changed this year, with Olivier Bonaventure stepping down, and Steve Uhlig taking over since April. Some changes have been made to the editorial board. The reviewing process is also evolving, to improve review transparency through more open communication between authors and reviewers, and to make the newsletter more open to various types of contributions that add value to the community. These changes have been published in an editorial note co-authored by the whole editorial board, in the July 2020 issue. In summary, these changes are the following: (1) reviewers and authors can clarify questions before decision, (2) open review is encouraged, (3) area editors may fast-track decisions, and (4) a new criterion in paper evaluation “value to the research community” has been introduced.

### **Awards**

**SIGCOMM Lifetime Achievement Award**: This year, SIGCOMM recognized two Internet pioneers with the lifetime award. Dr. **Amin Vahdat** from Google, and Prof. **Lixia Zhang** from UCLA. The award recognizes Dr. Vahdat for groundbreaking contributions to data center and wide area networks, and Prof. Zhang for pioneering work in Internet protocol development. Both awards will be presented during the annual SIGCOMM conference.”

The award committee consisted of Bruce Davie (VMWare), Craig Partridge (Colorado State University, chair), and Karen Sollins (MIT).

**SIGCOMM Doctoral Dissertation** **Award for Outstanding PhD Thesis in Computer Networking and Data Communication:** The award for the best doctoral dissertation submitted in 2019 went to two recipients as well, Dr. **Deepak Vasisht** for his thesis titled “Towards Realizing the Internet-of-Things Vision: In-body, Homes, and Farms”, and Dr. **Mina Tahmasbi Arashloo** for her thesis titled “Stateful Programming of High-Speed Network Hardware”. Dr. Vasisht is recognized for visionary research on internet-of-things services with concrete impact solving human-critical problems in different application areas including in-body, homes, and agriculture. Dr. Tahmashi Arashloo is recognized for pioneering the idea of raising the level of programming abstraction, and for proposing a new architecture for programming network transport protocols in FPGAs and a new language and compiler system for developing stateful applications for software-defined networks.

The committee consisted of Christophe Diot (Google, chair), Jim Kurose (UMass Amherst), Lili Qiu (University of Texas at Austin), Catherine Rosenberg (University of Waterloo), and Geoff Voelker (UC San Diego).

## SIGCOMM Rising Star Award: The recipient of the 2019 SIGCOMM Rising Star Award was Ethan Katz-Bassett from Columbia University. The award was in recognition of outstanding research contributions, early in his career, in improving the reliability and performance of Internet services. His practical and principled measurement-driven approach has led to innovative high-impact contributions across academia and industry.

## The rising star award committee consisted of Lixin Gao (University of Massachusetts, Amherst), Thomas Karagiannis (MSR Cambridge, chair), Craig Partridge (Colorado State University), Lili Qiu (University of Texas at Austin).

**SIGCOMM Test of Time Paper Award**: One paper was selected for the 2019 award by a committee composed of Paul Barford (University of Wisconsin-Madison), Hamed Haddadi (Imperial College London, chair), Thomas Karagiannis (Microsoft Research Cambridge), Sue Moon (KAIST), Walter Willinger (NIKSUN). The *paper* is:*“*A network in a laptop: rapid prototyping for software-defined networks" by Bob Lantz, Brandon Heller, and Nick McKeown, in ACM HotNets 2010.

Using illustrative cases studies, the paper demonstrates how a Mininet-based design can be wrapped in a VM to create a “network appliance” that can be distributed over the Internet so that anyone with a laptop can download and run a ``living, breathing” example of a new networked system. The paper has had a profound impact on catalyzing collaborative network research by setting new standards for reproducible networking research in the form of “runnable papers.”

**SIGCOMM Networking Systems Award**: This award was awarded for the third time in 2020 by a committee comprised of: Anja Feldmann (Max-Planck-Institut für Informatik), Srinivasan Keshav (University of Cambridge, chair), and Nick McKeown (Stanford University).

**“The ns family of network simulators (ns-1, ns-2, and ns-3)”**

“ns” is a well-known acronym in networking research, referring to a series of network simulators (ns-1, ns-2, and ns-3) developed over the past twenty-five years. ns-1 was developed at Lawrence Berkeley National Laboratory (LBNL) between 1995-97 based on an earlier simulator (REAL, written by S. Keshav). ns-2 was an early open source project, developed in the 1997-2004 timeframe and led by collaborators from USC Information Sciences Institute, LBNL, UC Berkeley, and Xerox PARC. A companion network animator (nam) was also developed during this time [Est00]. Between 2005-08, collaborators from the University of Washington, Inria Sophia Antipolis, Georgia Tech, and INESC TEC significantly rewrote the simulator to create ns-3, which continues today as an active open source project.

All the ns simulators can be characterized as packet-level, discrete-event network simulators, with which users can build models of computer networks with varying levels of fidelity, to conduct performance evaluation studies. The core of all three versions is written in C++, and simulation scripts are written directly in a native programming language: for ns-1, in the Tool Command Language (Tcl), for ns-2, in object-oriented Tcl (OTcl), and for ns-3, in either C++ or Python. ns is a full-stack simulator, with a high degree of abstraction at the physical and application layers, and varying levels of modeling detail between the MAC and transport layers. ns-1 was released with a BSD software license, ns-2 with a collection of licenses later consolidated into a GNU GPLv2-compatible framework, and ns-3 with the GNU GPLv2 license. ns-3 [Hen08, Ril10] can be viewed as a synthesis of three predecessor tools: yans [Lac06], GTNetS [Ril03], and ns-2 [Bre00]. ns-3 contains extensions to allow distributed execution on parallel processors, real-time scheduling with emulation capabilities for packet exchange with real systems, and a framework to allow C and C++ implementation (application and kernel) code to be compiled for reuse within ns-3 [Taz13]. Although ns-3 can be used as a general-purpose discrete-event simulator, and as a simulator for non-Internet-based networks, by far the most active use centers around Internet-based simulation studies, particularly those using its detailed models of 4G LTE (led by CTTC) and Wi-Fi systems. The project is now focused on developing models to allow ns-3 to support research and standardization activities involving several aspects of 5G NR, next-generation Wi-Fi, and the IETF Transport Area.

The ns-3-users Google Groups forum has over 9000 members (with several hundred monthly posts), and the developer mailing list contains over 1500 subscribers. Publication counts (as counted annually) in the ACM and IEEE digital libraries, as well as search results in Google Scholar, describing research work using or extending ns-2 and ns-3, continue to increase each year, and usage also appears to be growing within the networking industry and government laboratories. The project’s home page is at [https://www.nsnam.org](https://www.nsnam.org/), and software development discussion is conducted on the ns-developers@isi.edu mailing list.

The main authors of ns-1 were (in alphabetical order): Kevin Fall, Sally Floyd, Steve McCanne, and Kannan Varadhan. ns-2 had a larger number of contributors. Space precludes listing all authors, but the following people were leading source code committers to ns-2 (in alphabetical order): Xuan Chen, Kevin Fall, Sally Floyd, Padma Hélder, John Heidemann, Tom Henderson, Polly Huang, K.C. Lan, Steve McCone, Giao Nguyen, Venkat Padmanabhan, Yuri Pryadkin, Kannan Varadhan, Ya Xu, and Haobo Yu. A more complete list of ns-2 contributors can be found at: <https://www.isi.edu/nsnam/ns/CHANGES.html>.

The ns-3 simulator has been developed by over 250 contributors over the past fifteen years. The original main development team consisted of (in alphabetical order): Raj Bhattacharjea, Gustavo Carneiro, Craig Dowell, Tom Henderson, Mathieu Lacage, and George Riley.

Recognition is also due to the long list of ns-3 software maintainers, many of whom made significant contributions to ns-3, including (in alphabetical order): John Abraham, Zoraze Ali, Kirill Andreev, Abhijith Anilkumar, Stefano Avallone, Ghada Badawy, Nicola Baldo, Peter D. Barnes, Jr., Biljana Bojovic, Pavel Boyko, Junling Bu, Elena Buchatskaya, Daniel Camara, Matthieu Coudron, Yufei Cheng, Ankit Deepak, Sebastien Deronne, Tom Goff, Federico Guerra, Budiarto Herman, Mohamed Amine Ismail, Sam Jansen, Konstantinos Katsaros, Joe Kopena, Alexander Krotov, Flavio Kubota, Daniel Lertpratchya, Faker Moatamri, Vedran Miletic, Marco Miozzo, Hemanth Narra, Natale Patriciello, Tommaso Pecorella, Josh Pelkey, Alina Quereilhac, Getachew Redieteab, Manuel Requena, Matias Richart, Lalith Suresh, Brian Swenson, Mohit Tahiliani, Cristiano Tapparello, Adrian S.W. Tam, Hajime Tazaki, Frederic Urbani, Mitch Watrous, Florian Westphal, and Dizhi Zhou. The full list of ns-3 authors is maintained in the [AUTHORS file](https://gitlab.com/nsnam/ns-3-dev/-/blob/master/AUTHORS) in the top-level source code directory, and full commit attributions can be found in the git commit logs.

**References**

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**New SIGCOMM members as ACM Fellows and ACM Distinguished Members**

At the ACM level, three SIGCOMM members have been selected as ACM Fellows this year: Xiangyang Li, Prashant J. Shenoy, and Ramesh Kumar Sitaraman. Other members of the community recognized as ACM Distinguished Members included Mark Berman, Konstantinos Psounis, Joerg Widmer, and Haitao Zheng.

### **Industry Liaison Board**

The SIG’s industrial liaison board (ILB) was established four years ago with the goal of coming up with ideas and suggestions to increase industry participation at SIG-sponsored conferences. The ILB is currently chaired by Venkat Padmanabhan from Microsoft. The ILB has been much less active in the reporting period than in the past, but a summary of its recent activities follows:

* **Student dinner**. The ILB collated and passed on to the 2019 chairs the “best practices” from recent SIGCOMM conferences on the organization of the student dinner, with a view to maximizing the opportunity for students to interact with industry attendees. Due to many 2020 events being virtual, it remains unclear if this activity will lead to benefits for the student attendees and industry supporters.
* **Industry Day**. Given the lukewarm response to the Industry Day events in the past for various reasons, this initiative remains on hold. The Applied Networking Research Workshop (ANRW) collocated with IETF meetings has established itself as a successful venue for exchanges between part of the SIGCOMM community and the IETF community, which covers a significant part of the industry.
* **ILB structure**. The structure of the ILB has been formalized, with a size of 6 members, each serving a 3-year term. So, 2 new members would join and 2 rotate out each year.

### **Diversity and Outreach**

**N2Women partnership**. Following the partnership with N2Women, a workshop promoting diversity was organized alongside SenSys'19 in NY with support from SIGCOM and SIGMOBILE. In addition, we are also supporting N2Women awards aimed at each year honoring two members of the community who have made significant contributions to leadership and mentoring of junior researchers from underrepresented communities. The second edition of the workshop will be a one-day virtually held event together with our main conference, SIGCOMM'20, in NY, August 2020. The workshop will include talks and posters, of which the best ones will be recognized with an award. We are supporting the workshop by providing free registration to the workshop and the main conference as well as prizes to best poster awards (free registration to SIGCOMM'21).

**CRA-WP support.** The CRA-WP Grad Cohort Workshop was originally designed for female graduate students in computing fields, but has been recently changed to "Widen Participation (WP)" and split into two workshops, called CRA-WP Grad Cohort for Women, and CRA-WP Graduate Cohort for Under-Represented Minorities and Persons with Disabilities (URMD). We continue to provide $15k in yearly support for both CRA-WP workshops, which is used to allow minority students to attend these events. We also support attendance of the workshops by a couple of senior SIG members to represent the SIG. The workshops include a mix of formal presentations, informal discussions, and social events. Participants can build mentoring relationships and develop peer networks that are intended to form the basis for ongoing activities during their graduate career and beyond. This year, the CRA-URMD and CRA-W workshops were scheduled for March and April, respectively, but were unfortunately disrupted by the pandemics. CRA-URMD happened nonetheless in the first week of March, in Texas. We supported the attendance of one senior member of our community, who happens to be a member of one of the minority groups represented in the workshop. CRA-WP for Women was not feasible.

**LANCOMM 2020**. The first edition of LANCOMM was very successful. The second one would take place, as in the previous year, along with the Brazilian Symposium on Computer Networks (SBRC), to leverage both the infrastructure and attendance of that event. LANCOMM was originally scheduled for May 2020, in Rio de Janeiro city. However, the pandemics led to SBRC organizers to postpone the event to December 2020, in hopes of having a normal, physical event or at least a hybrid one with support for virtual participation. However, the pandemics situation did not improve globally, and particularly worsened in Brazil, and at this point SBRC is likely to be held virtually anyway. One of the key objectives of LANCOMM is to promote networking, which requires in-person contact. In this context, the workshop organizers decided to cancel LANCOMM 2020 as they would be unable to attract a physical presence of students or senior keynote speakers.

**Geo-diversity Travel Grants**. Historically, SIG sponsored conferences have not received many requests for travel grants under the geo-diversity category. We have been actively publicizing our conferences to under-represented groups, with an initial focus on Latin America, highlighting the availability of travel grants and related initiatives supported by the SIG, *e.g.,* grants to allow young faculty to travel to Program Committee meetings. The situation is gradually improving, which was observed throughout 2019, but the first semester of 2020 is abnormal because of virtual conferences, when no traveling is possible.

**Consistent Policies for SIG events**. Towards ensuring that all SIG events comply with properly displaying the ACM and SIG policies that attendees need to be made aware of, especially when it comes to issues related to discrimination, harassment, and privacy; something that was unevenly done before, the SIG employs a document that summarizes those requirements and that is to be used by all SIG events.

**CARES Committee** (Committee to Aid Reporting on discrimination and harassment policy violations). The SIGCOMM CARES committee was formally introduced in 2019. It is intended to help prevent and address any form of unacceptable behavior at events associated with the SIG. Its creation was in part in recognition of the fact that reporting discrimination and harassment to a person of authority, *e.g.,* conference chairs, SIG officers, or ACM staff, can be intimidating, especially in the face of an already traumatic experience. CARES committee members can serve as an alternative and are also intended as a source of advice on how to approach such a situation and ensure it is investigated by ACM. Committee members are available to listen and help anyone who has either experienced or witnessed discrimination and harassment at any event promoted by the SIG or needs counseling on how to handle it. Committee members were present in four of the most important SIG events: SIGCOMM, CoNEXT, IMC, and HotNets. CARES members can also be contacted online to facilitate and schedule initial discussions. The role of the committee has been recently expanded to cover any harassment-related issues in the community, not limited to during conferences. The present committee members are Sujata Banerjee - VMware, Marinho Barcellos (co-chair) - University of Waikato, NZ, Craig Partridge - Colorado State University, Jennifer Rexford - Princeton University, Justine Sherry - Carnegie Mellon University, and Ellen Zegura (co-chair) - Georgia Tech.

### **Issues facing the SIG**

Last year’s report identified discrimination and harassment as an important issue that the SIG needs to tackle seriously. Towards addressing it, we introduced at the 2018 SIGCOMM conference in Bucharest a pilot CARES committee (Committee to Aid Reporting on discrimination and harassment policy violations) modeled after the committee of the same name introduced by SIGARCH. The CARES committee was then formally introduced in 2019 and its role was recently expanded to also include instances of harassment and/or coercion related to publications. There are six CARES committee members that rotate in being present across our conferences, with all members accessible on an ongoing basis to members of the SIGCOMM community either by email or other form of virtual contact. The hope is that the existence of this committee will increase awareness about discrimination and harassment of any kind, and consequently reduce the number of such occurrences while at the same time offering easier access to resources and advice when they do occur.

Although membership decrease seems to have stabilized, or membership level remains at an all-time low, which is worrisome. This is not (yet) affecting the financial stability of the SIG as our conferences continue to generate a healthy surplus and may be a sign of the waning interest in data communications when compared to “hot areas” such as “AI & ML”, the professional data communication community remains healthy and even to some extent growing. This seems to indicate that we may not be offering a strong enough value proposition to this segment of our community. We have attempted to address this through our Industry Liaison Board, but as mentioned earlier, it is itself facing its own challenges; maybe in part because of difficulties in identifying relevant intersections between the traditional research focus of the SIG and the more applied interests of the current bulk of our community.

Our attempts to broaden the SIG’s diversity may succeed in providing a temporary reprieve to our membership decline (by tapping into new “markets”), but if we are truly not delivering meaningful value to members, that reprieve is likely to be short-lived. The outreach activities initiated by the education chair this year are another step in the right direction. However, understanding how we can initiate other activities that will help us turn this around and bridge the gap that seems to exist between many of our current activities and where the interests of the bulk of our community lie is one of the main challenges the SIG is facing going forward.

**SIGCSE Annual Report**

**July 2019 - June 2020**

**Submitted by: Adrienne Decker, Chair**

The scope of SIGCSE is to provide a global forum for educators to discuss research and practice related to the learning, and teaching of computing, the development, implementation, and evaluation of computing programs, curricula, and courses at all education levels, as well as broad participation, educational technology, instructional spaces, and other elements of teaching and pedagogy related to computing.

**Awards**

The 2020 SIGCSE Award for Outstanding Contribution to Computer Science Education was presented to Lauri Malmi from Aalto University in Finland. His work focuses on advanced learning environments for programming education. He has created a strong network of collaboration among universities in Finland to advance the work of the research and tools being done in introductory programming. He has chaired SIGCSE Doctoral Consortia and was a chair of ICER and has contributed to the creation and growth of Koli Calling.

The 2020 SIGCSE Award for Lifetime Service to the Computer Science Education Community was given to Alison Clear from Eastern Institute of Technology Auckland in New Zealand. Alison's work on curriculum development has spanned 30 years beginning with leading the development of the national computing curriculum in New Zealand in 1986. She has served the SIGCSE organization as a board member for 9 years, and as a conference chair to both ITiCSE and ICER. Currently, she is chairing the joint ACM and IEEE-CS effort to produce the Computing Curriculum 2020 document.

The SIGCSE Board started a new award in 2020, the SIGCSE Test of Time award. The first recipient of this award was "An object-oriented development environment for first programming course" authored by Michael Kolling and John Rosenberg. The paper was originally presented at SIGCSE Technical Symposium on Computer Science Education in 1996. This paper was part of the first wave of papers that built the movement to the use of object-orientation in teaching introductory programming. The Blue environment introduced in the paper evolved into the BlueJ environment that has had over 20 million users to date and has created a research environment for 12 separate research groups using Blackbox which collects user interaction data from BlueJ.

**Significant papers on new areas that were published in proceedings**

The 2019 ACM International Computing Education Research Conference (ICER 2019) had two best paper awards.

The Chair's Award is selected by the organizing committee and was presented jointly to Yasmin Kafai, Chris Proctor, and Debora Lui for "From Theory Bias to Theory Dialogue: Embracing Cognitive, Situated, and Critical Framings of Computational Thinking in K-12 CS Education" and to Lauri Malmi, Judy Sheard, and Paivi Kinnunen for "Computing Education Theories: What Are They and How Are They Used?"

The John Henry Award is selected by the conference attendees and was presented to Lauren Margulieux for "Spatial Encoding Strategy Theory: The Relationship between Spatial Skill and STEM Achievement."

In 2020 the SIGCSE Technical Symposium gave best paper awards for three different categories of papers. In each category the top three papers were identified.

In the Experience Report and Tools category the Best paper was Applying NCWIT Protocol to Broaden Participation in Computing: A Case Study of CS@Mines” by Tracy Camp, Christine Liebe, Michelle Slattery. The Second-Best paper was “A Comparison of Two Pair Programming Configurations for Upper Elementary Students” by Jennifer Tsan, Jessica Vandenberg, Zarifa Zakaria, Joseph B. Wiggins, Alexander R. Webber, Amanda Bradbury, Collin Lynch, Eric N. Wiebe, Kristy Elizabeth Boyer. The Third Best paper was “Reviewing CS1 Materials through a Collaborative Software Engineering Exercise: An Experience Report” by Jessica Young Schmidt.

In the Curricula Initiatives category, the Best paper was “Design Principles behind Beauty and Joy of Computing” by Paul Goldenberg, June Mark, Brian Harvey, Al Cuoco, Mary Fries. The Second-Best paper was “Teaching Autonomous Systems at 1/10th-scale: Design of the F1/10 Racecar, Simulators and Curriculum” by Abhijeet Agnihotri, Matthew O’Kelly, Houssam Abbas, Rahul Mangharam. The Third Best paper was “Creating a Balanced Data Science Program” by Joel C. Adams.

In CS Education Research category, the best paper was “Competitive Enrollment Policies in Computing Departments Negatively Predict First-Year Students’ Sense of Belonging, Self-Efficacy, and Perception of Department” by An Nguyen, Colleen M. Lewis. The Second-Best paper was “Dual-Modality Instruction and Learning: A Case Study in CS1” by Jeremiah Blanchard, Christina Gardner-McCune, Lisa Anthony. The Third Best paper was “What Are Cybersecurity Education Papers About? A Systematic Literature Review of SIGCSE and ITiCSE Conferences” by Valdemar Svabensky, Jan Vykopal, Pavel Celeda.

There was a single Best Paper Award given at ITiCSE 2020. It was awarded to Kirsten Mork, John Wilcox, and Zoe Wood for “Creative Choice in Fifth Grade Computing Curriculum.” The ACM Europe Council sponsored the award and presented the winner with a certificate and a 1000 Euro cheque.

The SIGCSE Board created an award to honor the 25th anniversary of ITiCSE (celebrated June 17-18 virtually) that would honor the Top 5 ITiCSE Papers and Top 5 Working Group Reports from the first 24 proceedings of ITiCSE.

The top 5 papers were (ordered by date):

1996, "Active Learning and Its Use in Computer Science" by Jeffrey J. McConnell. 2004, "Self-efficacy and mental models in learning to program" by Vennila Ramalingam, Deborah LaBelle, Susan Wiedenbeck. 2005, A study of the difficulties of novice programmers by Essi Lahtinen, Kirsti Ala-Mutka, Hannu-Matti Järvinen. 2006, "Not seeing the forest for the trees: novice programmers and the SOLO taxonomy" by Raymond Lister, Beth Simon, Errol Thompson, Jacqueline Whalley, Christine Prasad. 2014, "Failure rates in introductory programming revisited by Christopher Watson, Frederick W.B. Li. From these, the paper "Self-efficacy and mental models in learning to program" by Vennila Ramalingam, Deborah LaBelle, and Susan Wiedenbeck was chosen as the Top Paper.

The top 5 working group reports were (ordered by date):

2001, "A multi-national, multi-institutional study of assessment of programming skills of first-year CS students" by Michael McCracken, Vicki Almstrum, Danny Diaz, Mark Guzdial, Dianne Hagan, Yifat Ben-David Kolikant, Cary Laxer, Lynda Thomas, Ian Utting, Tadeusz Wilusz. 2002, "Exploring the role of visualization and engagement in computer science education" by Thomas L. Naps, Guido Rößling, Vicki Almstrum, Wanda Dann, Rudolf Fleischer, Chris Hundhausen, Ari Korhonen, Lauri Malmi, Myles McNally, Susan Rodger, J. Ángel Velázquez-Iturbide. 2004, "A multi-national study of reading and tracing skills in novice programmers" by Raymond Lister, Elizabeth S. Adams, Sue Fitzgerald, William Fone, John Hamer, Morten Lindholm, Robert McCartney, Jan Erik Moström, Kate Sanders, Otto Seppälä, Beth Simon, Lynda Thomas. 2008, "Contributing student pedagogy" by John Hamer, Quintin Cutts, Jana Jackova, Andrew Luxton-Reilly, Robert McCartney, Helen Purchase, Charles Riedesel, Mara Saeli, Kate Sanders, Judithe Sheard. 2018,

"Introductory programming: a systematic literature review" by Andrew Luxton-Reilly, Simon, Ibrahim Albluwi, Brett A. Becker, Michail Giannakos, Amruth N. Kumar, Linda Ott, James Paterson, Michael James Scott, Judy Sheard, Claudia Szabo. From these, the working group report "Contributing student pedagogy" by John Hamer, Quintin Cutts, Jana Jackova, Andrew Luxton-Reilly, Robert McCartney, Helen Purchase, Charles Riedesel, Mara Saeli, Kate Sanders, Judithe Sheard was chosen as the Top Working Group Report

**Significant programs that provided a springboard for further technical efforts**

The SIGCSE Special Projects Fund provides grants up to $5000 per project and has a call for proposals in November and May of each year.

The November 2019 call resulted in 38 applications of which 5 were funded for an acceptance rate of 13%. Jakita Thomas from Auburn University, USA was awarded $5000 for a project titled "The Firsts: Exploring the Intersectional Experiences of Black Women in

Computing Who Were First to be Conferred PhDs in Computing/Computer Sciences at Colleges/Universities". Matthias Hauswirth from Universite della Svizzera italiana in the Switzerland was awarded $5000 for a project entitled “Mastery Learning in Programming Courses.” Wei Jin from Georgia Gwinnett College, USA was awarded $5000 for a project titled “An Online Tool for Easy-to-set-up and Auto-gradable Full Tracing Exercises”. Brett Becker from University College Dublin, Ireland was awarded $4,785 for a project entitled “The Crossroads of Computer Science: Stories of ‘Sideways’ and ‘Hidden’ Computer Scientists.” Daniela Marghitu from Auburn University, USA was awarded $3,500 for a project entitled “Developing Coding Instruction Videos for K12 Hearing Impaired Students Using American Sign Language.”

The May 2020 call was cancelled due to the global pandemic and the financial uncertainty about the on-the-ground cancellation of the SIGCSE Technical Symposium in March 2020.

ITiCSE 2020 had ten working groups on the following topics: (1) Choosing code segments to exclude from code similarity detection, (2) Capturing and Characterizing Notional Machines, (3) Toward High-Performance Computing Education, (4) Assessing how pre-requisite skills affect learning of advanced concepts, (5 Developing a Model Augmented Reality Curriculum, (6) Cloud Computing Curriculum: Developing Exemplar Modules for General Course Inclusion, (7)Meaningful Assessment at Scale: Helping Instructors to Assess Online Learning, (8) Reviewing Computing Education Papers, (9) Developing Competency Statements for Computer Science Curricula: The Way Ahead. The participants in the working groups develop a research project that culminates in a peer-reviewed paper. The projects foster international research collaborations.

**Innovative programs which provide service to some part of your technical community**

Every other year, the SIGCSE Board runs a workshop for graduate students and new academics called the New Educators Wednesday Roundtable (NEWR). The workshop features small group discussions among the students and presentations by seasoned academic mentors providing advice and guidance to faculty who are just starting out in their careers. Topics for discussion and presentation centered around finding a career path; balancing teaching, research, and service; working with colleagues; navigating the tenure process; course organization; and student mentoring advice. NEWR took place on Wednesday, March 11, 2020 as a pre-symposium event before the 2020 symposium and was held prior to the symposium's cancellation. The workshop was organized by Zachary Dodds (Harvey Mudd College) and Diane Horton (University of Toronto).

On alternate years, the SIGCSE Board runs a workshop for department chairs. The next Department Chair's Roundtable will be held in conjunction with the SIGCSE Technical Symposium in March 2021.

SIGCSE has a Travel Grant Program for faculty and teachers who have never attended the SIGCSE Technical Symposium. The 51st SIGCSE Technical Symposium was scheduled to take place in 2020 but was cancelled the evening before the first day of the conference. The program had awarded 20 grants for 2020. Participants who were not able to attend this year will be allowed to use their travel grant in the coming year.

There were two doctoral consortia associated with SIGCSE conferences during this year.

A doctoral consortium ran in Toronto, Canada just prior to the 2019 The International Computing Education Research Conference (ICER). The students presented their work to the discussants and engaged in discussion about various topics with regard to graduate school, research, and careers. The doctoral consortium was attended by 20 graduate students in computer science education. 11 of the participants were women, and 9 were men. 11 participants were from the United States, 3 from Canada, 5 from Europe, and 1 from Australia. SIGCSE provides travel grants to the students and partial funding for lodging during the workshop and during ICER 2019. The SIGCSE Board will continue to fund up to twenty Doctoral Consortium grants for participants of the ICER conference in 2020.

There was also a doctoral consortium virtually associated with ITiCSE 2020 (originally scheduled in Tronheim, Norway). 11 students attended the event, which was supported ACM Europe. The doctoral consortium was organized by Mark Zarb (Robert Gordon University, UK) and Neena Thota (UMass Amherst, USA) and focused on nurturing students’ research and orienting them in the ITiCSE community.

**Events or programs that broadened participation either geographically, or among under-represented members of your community**

SIGCSE established a new conference in 2019. The ACM Global Computing Education Conference (CompEd) will be offered once every two years and will be hosted in countries that do not currently have an annual SIGCSE conference. This year, the board has set the second CompEd conference to be held in Hyderabad, India in December 2021. The CompEd steering committee is actively seeking out venues in South America for future CompEd conferences.

In June 2020, the SIGCSE Board called for volunteers to form a SIGCSE Committee on diversity, equity, inclusion, and anti-racism to help better guide the SIGCSE community in these efforts. Leadership for this group has been identified and the leadership cohort is currently working on a charter and set of events and activities to help guide the board and the community in this important work.

**Key Issues for the Next 2-3 Years**

This year, 2020, had provided a series of challenges for SIGCSE (and all organizations) that will reverberate for years to come.

The first challenge is the adaptation of conferences from strictly in-person events to hybrid or fully online events. For 2020, all our conferences were either cancelled or scheduled virtually. This will likely continue into the first part of 2021. The challenge for these events is to make them as valuable to the community in terms of engagement as in-person events. These types of events also present an opportunity to engage those who were previously unable to attend in-person events for various reasons with the community. While there have been several successful experiments with virtual events (even before the pandemic), the logistics of hybrid events have historically been a challenge.

The second challenge is the renewed called to action with regards to racism, diversity, and inclusion in all aspects of society. Professional societies are not immune and certainly can be one place where racism and exclusion can thrive. While there are several ways in which SIGCSE promotes and strives for diversity and inclusion and has succeeded, we have several areas where we could improve, particularly around conference leadership, which has been challenging to recruit for historically, and has been especially difficult to recruit diverse candidates for a number of reasons. It is imperative, however, that we work to create systems that allow for diverse candidates to be identified, recognized, and elevated in these positions.

**SIGDOC FY ’20 Annual Report**

**July 2019 – June 2020**

**Submitted by: Daniel P. Richards, Chair**

#

# **Overview**

The ACM Special Interest Group for Design of Communication (SIGDOC) provides a forum for researchers and practitioners of the design of communication, including but not limited to those doing work in information architecture, information design, content management, user experience, user documentation (traditional and user-contributed), as well as governmental, scientific, and public participatory contexts. SIGDOC’s overall mission is to: advance the state of knowledge; encourage the research; and support the interdisciplinary practice of the design of communication.

#

# **Leadership**

The current leadership team is completing its first full year in leadership. Elections were held, led by Dr. Michael Salvo as the Elections Chair, in July of 2019 and our then newly elected Executive Committee successfully transitioned into their leadership roles: Dr. Daniel P. Richards, Chair; Dr. Sarah Read, Vice Chair; and Dr. Susan Youngblood, Secretary/Treasurer. Dr. Emma Rose has successfully transitioned to Past Chair and continues an important advisory role.

The new Executive Committee (EC) made some changes to the Board, namely adding a new line of Access Chair with the appointment of Dr. Sean Zdenek. This Board position helps foreground issues of access in organizational communication, with specific expertise on crafting inclusive and accessible conferences moving forward. This appointment has already help establish a more concrete relationship with SIGACCESS. We have a new member at large, Lisa Dush, a new student representative, Nupoor Ranade, and a new organizational liaison, Lisa Melconcon. Our communications team has stayed intact.

The EC helped lead the organization through two major moments this past year: transitioning our lone conference in October to a virtual event and crafting a response to injustice in light of the murder of George Floyd at the hands of the police, paving the way for future organizational changes. The official statements of each moment can be found on SIGDOC’s website (Virtual Event announcement [sigdoc.acm.org/blog/2020/04/29/chairs-statement-on-sigdoc-2020-transition-to-virtual-event/] and Response to Injustice [sigdoc.acm.org/blog/2020/06/12/official-statement-from-sigdoc-a-response-to-injustice/]).

In addition, the new EC will continue with the following strategic priorities for the upcoming year and extending into their three-year term:

1. Update mission and bylaws: The organizations’ mission and bylaws will be revisited to ensure they reflect the current focus of the organization and the response to injustice. Once updated, SIGDOC members will vote to approve. Currently, we are collecting feedback from our members on the existing mission statement to assess if and how it should be updated.
2. Conference seating strategy: Over the past year, the board has had a variety of discussions on creating a more formal strategy for choosing conference venues. This work will continue this year so we can make conference planning sustainable and effective for our members.
3. Broadening participation and attendance: Over the past year, the EC has engaged in several efforts to broaden participation in our SIG and attendance at the conference. Several initiatives are linked to the priorities of our membership, which include ensuring a connection with industry, focusing on the publication of high-quality research in communication design, and focusing on inclusion, equity, and diversity within the organization.
4. Strategic planning: The new executive committee will continue to explore additional initiatives as part of their term, including the new funding line connected to the response to injustice.

# **SIGDOC Annual Conference 2019**

Our flagship conference is our annual SIGDOC conference, which typically takes place in the summer or fall of each year. The SIGDOC 2019 conference took place in Portland, OR, USA from October 4-6. The theme was *Broadening the Boundaries in Communication Design*, inviting scholars, practitioners, and teachers to consider how disciplinary, social, geographic, technical, cultural, and ethical boundaries shape our professional experiences and civic lives in communication design, professional and technical communication (PTC), and user experience (UX), and/or how these boundaries might be questioned, broken down, or reassembled.

The conference committee included:

* Conference Chair: Julie Staggers, Washington State University
* Local Conference Co-Chairs: Sarah Read, Portland State University and Lars Soderlund, Western Oregon University
* Program Co-Chairs: Tim Amidon, Colorado State University, Ehren Pflugfelder, Oregon State University, and Daniel P. Richards, Old Dominion University
* Student Research Competition Co-Chairs: Jason Swarts, NC State University, and Sonia Stephens, University of Central Florida
* Sponsorship Chair: Jordan Frith, Clemson University
* Accessibility Chair: Sean Zdenek, University of Delaware
* Social Media Manager: Jason Tham, Texas Tech University
* Communications Manager: Luke Thominet, Florida International University
* Website Manager: Adam Strantz, Miami University
* Student Representative: Nupoor Ranade

We had 51 items that were peer reviewed and published in the proceedings, including 39 papers and panel abstracts; 3 poster abstracts; and 9 poster abstracts as part of the Student Research Competition. The 51 items represent the highest number of peer reviewed pieces we have ever published in the proceedings. In all, we had 149 attendees registered for the conference. We saw a robust engagement with graduate and undergraduate students who participated in our Microsoft Student Research Competition.

 At the conference, we presented Dr. Samantha Blackmon as 2019 Rigo Award Winner. Dr. Blackmon also gave a keynote address. The local keynote address was given by Megan Bigelow, in her talk: “2019 State of the Community Survey Results: Current Tech Power Structures are Defining Diversity and Inclusion.” Megan is the founder and board president of Portland Women in Tech (PDXWIT), a 501c3 nonprofit. Her inclusion helped us fulfill our mission of connecting industry to academia in communication design.

We saw robust attendance at our series of professional development workshops and our Super Meetup, held at Jama Software in downtown Portland. The ignite talks at the meetup consisted of both academics and practitioners in the field:

* Erin Grace, Epiq
* Ron Bronson, 18F
* Mo Nishiyama, Oregon Health Sciences University (OHSU)
* Rebecca Walton, Utah State University
* Michele Simmons, Miami University

The research that our members are presenting at our conference continues to address salient and cutting-edge issues and themes in the fields of communication design, user experience, and technical communication. The 2019 conference closed with the following:

Total Revenue: **$27,698.05**
Total Expenses (with allocation): **$29,152.37**

Allocation: **$4021.02**

Surplus/Loss: **($1454.32)**

Paid Attendance: **149**

Actual Attendance: **149**

# **Awards and Grants**

At the 2019 conference, SIGDOC awarded the Rigo Award, which celebrates an individual’s lifetime contribution to the field of communication design, to Dr. Samantha Blackmon. Dr. Samantha Blackmon is an Associate Professor of Rhetoric and Composition at Purdue University in West Lafayette, IN. She is a gamer of more than 4 decades and studies rhetoric at the intersection of video games and identity politics. She is also the co-founder of the *Not Your Mama’s Gamer* podcast and blog and the Editor-in-Chief of *NYMG*, a middle state Feminist Game Studies journal. She is currently an Xbox MVP. Her work is wide-ranging, covering technical communication, writing pedagogy, literacy studies and critical game studies. Her groundbreaking work critically examines gaming to analyze how queer and people of color are represented in the gaming community and how these users navigate the predominantly white cis online environment of gaming. Her work and mentorship of students have paved the way for inclusive design of gaming spaces.

SIGDOC awarded its Best Paper award to Rachel Atherton and Alisha Karabinus, for their paper titled “Professional Practice, Amateur Profile: Mapping Amateur Game Design Communities.”

The abstract is as follows:

Previous research indicates amateur game design communities, which often mirror professional practices, are fruitful spaces for research in professional and technical communication. Before crossing into these spaces, however, researchers and practitioners must understand the makeup of these communities, which may cater to marginalized populations in ways the games industry does not. In this study, we used the International Game Developers’ Association’s Developer Satisfaction Survey as a base for our own surveys of three amateur game design communities. In mapping these communities, we found that each mirrored the games industry in several categories, but that each community displayed unique differences that necessitate a variety of approaches to conducting research in or on such sites.

This paper connected well with Dr. Blackmon’s work.

In 2019-2020, we awarded two Career Advancement Research Grants, each for $1200. The awardees were:

* “Ideals and Realities: Exploring Usability in Born-Digital Scholarship,” *Rob Grace and Jason Tham (Texas Tech University)*
* “Social Media Article Visualizer Project,” *Stephen Carradini (Arizona State University)*

**Communication Design Quarterly**

Our newsletter, *Communication Design Quarterly*, continues to contribute valuable, peer-reviewed articles that are shared broadly. In 2018, Derek G. Ross took over as Editor in Chief of the publication. Since then, *CDQ* has increased its editorial board from 9 to 48, located internationally, all of whom are experts in some facet of communication design. This increases both our reach, and our ability to thoroughly and professionally address article reviews. He has also made various changes to editorial policies including special issues and length, which are available through our website, which is maintained and updated regularly by Website Manager, Adam Strantz.

In Fall 2018, *CDQ* moved to an Online First model of publication which allowed us to ensure that cutting-edge research is made available in a timely fashion. Non-special issue articles will be published individually on our website as they are edited and processed, then collected into quarterly journals for archival. We currently have a steady pipeline of submitted articles that are under review. *CDQ*’s Online First model allows academics and practitioners to interact with cutting-edge research as soon as it is released.

In 2019, *CDQ* revised its policies to include a clear statement on Inclusivity and Data Visualization, and began a WhitePaper series created and produced by *CDQ*’s Editorial Assistants and Interns, the first of which, *Accessibility in Journals*, is available from our new “research and teaching tools” component of the *CDQ*’s website.

In 2020, *CDQ* will introduce a new podcast series, curated, and edited by Dr. Ed. Youngblood, which is designed to promote key articles and increase awareness of the publication.

The current editor and the previous editor have repeatedly raised the issue of the need for funding to support *CDQ*. SIGDOC is committed to supporting the editors and their work in producing this publication. For this year, we will consider how to continue to support the work of making *CDQ* a high-quality publication.

Engagement with recent content shows how engaged *CDQ*’s readership is. From 8.1, released in 2020:

* Article 1, Roth Miller et al.’s “Social media in professional, technical, and scientific communication programs” already has 42 downloads.
* Stephens and Richards’s “Story mapping and sea level rise” has 31.

These numbers are significant. While our most downloaded article, Pflugfelder’s “Big Data, big questions” has 1459 downloads, that piece was published in 2013. That people are regularly visiting SIGDOC’s digital library and downloading our materials shows the value of this publication.

**New Program and Organizational Work**

As part of our response to injustice, we have committed to the following:

* **Learning**. We are prioritizing our efforts to learn about anti-racism especially in the context of the design of communication, the history of design, and documentation. We encourage SIGDOC members to do the same. This summer we will be taking part in the “21-Day Racial Equity Challenge” by MLPP and reading Race After Technology: Abolitionist Tools for the New Jim Code by Ruha Benjamin, Design Justice by Sasha Costanza-Chock, and Technical Communication After the Social Justice Turn: Building Coalitions for Action by Rebecca Walton, Kristen R. Moore, and Natasha N. Jones. We invite you to join us.
* **Re-Envisioning**. We are revising existing bylaws, policies, as well as guidance on editorial work and conference planning through the lens of justice and anti-racism in collaboration with the SIGDOC Board and our membership. We will report our progress at the 2020 SIGDOC Conference in October.
* **Investing**. We are dedicating funds to support justice-centered and anti-racist work:
	+ *Immediate*: We are focusing the two 2020-2021 Career Advancement Research Grants ($2400 total) to specifically fund projects that actively work to dismantle systemic injustices or create new visions of equity and justice. The CFP will be released in October at the 2020 SIGDOC Conference, with a submission deadline of November 30th.
	+ *Sustainable*: We are allocating a permanent annual budgetary line item of $2000 dedicated to supporting justice-centered initiatives in the design of communication. This line item will support the organization to purposefully dedicate resources of the organization to do justice-centered work. We will convene a session at the 2020 SIGDOC Conference to gather input from members to discuss how to use these funds.
* **Publishing**. *Communication Design Quarterly*, our organizational publication, will examine and revise our review guidelines as needed through the lens of justice, antiracism, and inclusion in collaboration with the Editorial Board. Editor in Chief Derek Ross will report our progress at the 2020 SIGDOC Conference in October.
* **Re-Centering**. We are calling on the SIGDOC community to re-center their work around anti-racist practices. For academics, this could mean engaging in antiracist sourcing and citation practices. For industry practitioners, this could mean engaging in a more diverse array of community stakeholders. We include ourselves as the Executive Committee, as well as the Conference Committee, SIGDOC Board, and the Website and Social Media Teams, in this call.

The key component (underlined) to these commitments is the new permanent budgetary line dedicated to support justice-centered initiatives in communication design. We are currently seeking feedback about the shape and scope of this new program by the Board and eventually our membership body.

# **Social Media**

Our social media reach continues to expand. We have divided our Facebook presence into an official ACM SIGDOC page that communicates news and events and SIGDOC Forum, where members can share CFPs and discuss timely topics.

# **Membership**

As SIGDOC continues to rebuild, the leadership team is developing strategic plans for reviving membership in SIGDOC. As of November 2019, our membership is 196, which is an increase of 39 from last year at this time. We very nearly met our goal of 200 members by 2020, and still might achieve this by conference time. Our strategic plan is to increase membership to 250 by 2022.

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# **Upcoming Conference**

We have moved our 2020 conference to an entirely virtual event. The event will still be “hosted” by the University of North Texas local co-chairs, and it will take place synchronously and asynchronously from October 5th through 9th. The events include video presentations by presenters, workshops and discussion sessions over Zoom, podcast episodes, social media engagement, keynotes, and a virtual meetup connecting industry with academia. As is usual, there will be a variety of technical workshops and a variety of panels and paper presentations.

# **Future Plans**

We have identified the following issues and plans that will occupy our time over the next 2-3 years:

* *Virtual conferences*. We are leaning towards a virtual event for SIGDOC 2021, but we are open to the idea of having a host city or multiple host cities available in case things take a positive turn regarding our current pandemic.
* *Conference siting*. Given the pandemic, we have to postpone our work a bit on developing a framework for soliciting conference siting applications.
* *Revise bylaws*. Our bylaws are out of date and we wish to update them to reflect our current practices and values.
* *Connecting to industry*. For the first time, the 2019 proceedings had a new genre called “Industry Insights” that solicited write-ups of presenters in industry. We hope to use these relationships to continue to expand our membership and readership. In this light, we are still committed to community partnerships through the development of a Community Liaison position on the board, whose responsibility would be to do outreach for community partners and solicit and program at least one community-driven panel.

In addition to these new strategies, we will continue working with Women in Technical Communication and supporting the Microsoft Student Research Competition.

**SIGEVO Annual Report**

**July 2019 - June 2020**

**Submitted by: Franz Rothlauf, Chair**

**EXECUTIVE BOARD**

This year there were no elections to the Executive Board.

**BUSINESS MEETING**

GECCO 2020 is formally outside the report period, but very close, so I shall report on the results of the business meeting that took place on July, 13th (just after GECCO) as a zoom meeting, as they cover most of SIGEVO activities in the last 12 months. As usual, the chair and EiC of both 2020 and 2021 GECCOs were also invited.

The following announcements and decisions were made at the meeting:

1. The organization and running of GECCO 2020 was strongly affected by Covid-19. The officers (together with the general chair of GECCO 2020 and the business committee of GECCO 2020) decided beginning of March to run GECCO 2020 as a pure virtual conference. Looking back, this was the right decision. Following this decision, organizers (and officers) worked hard to transform GECCO to a virtual conference. This came along with a new electronic conference platform for GECCO ([https://gecco.tamps.cinvestav.mx](https://gecco.tamps.cinvestav.mx/)), the use of pre-recorded talks as backup, the live streaming of presentations at GECCO via zoom, strong modifications of the registration fees, and many, many changes in GECCO operations. Looking back, the transformation of GECCO in the virtual space went very well. We had 652 (!) registrations and 683 participants (slightly more as not all participants were registered). Furthermore, GECCO made a completely unforeseen surplus of around 50k. Originally, we expected a larger loss due to costs for cancellation of the face-to-face GECCO, additional cost of running a virtual GECCO, and large uncertainty about the number of participants.
With 413 submissions (plus 46 poster submissions) and an acceptance rate of 36% we are similar to the previous GECCOs.
2. We decided on a longer planning horizon for future GECCO. The planning for GECCO 2021 is on its way. The General Chair is Kris Krawiec, Editor in Chief is Fancis Chicano. Both are respected members of the community. The organization is already well advanced: the venue has already been chosen. In 2022, we decided to go to Australia. For 2023, we go back to Europe. For 2024, there is the plan to go to Cancun.
3. The main discussion at the moment is the format of future GECCOs. The majority of the board is leaning towards a hybrid format that allows remote participation while running a traditional face-to-face conference. However, some board members have serious concerns as a hybrid format brings many new problems and does not allow personal interaction. Furthermore, there are high financial risks associated with hybrid conferences. On the other hand, a hybrid conference would increase our sustainability (lower carbon footprint) and lead to higher inclusiveness (also researcher with less research money can attend). Furthermore, most board members see hybrid formats as the future standard. The business committee decided to continue with the planning of a hybrid format for GECCO 2021. The final decision on the format of GECCO 2021 will be made in October 2020 after PPSN 2020, which will run as a hybrid conference in September 2029. The board hopes to learn from the PPSN experience.
4. Furthermore, our new journal Transactions on Evolutionary Learning and Optimization is making good progress. The EiCs Darrell Whitley and Jürgen Branke are planning to publish the first issue in January 2021.
5. In the last weeks, a major problem for our scientific community arised as we found out that Clarivate is not regularly indexing all GECCO proceedings. The same happened to IEEEs Congress on Evolutionary Computation. Following some interaction between IEEE and Clarivate, Clarivate is now indexing **all** IEEE conferences. For SIGEVO, we are currently in discussion with Scott Delman to ensure that GECCO is regularly indexed by clarivate. We really hope that we make some progress in this issue as not indexing our main conference strongly affects the impact factor of our journals as well as our scientific visibility.
6. Gabriela Ochoa has overtook the SIGEVO newsletter. Volume 13, Issue 1 has been published and Volume 13, Issue 2 will be published in the next few days. Gabriela moved from the traditional pdf-format to an html-format of the newsletter. This brings a more modern appearance and easier accessibility. An open issue is that ACM HQ requires us to “deliver” a pdf-variant of the newsletter, which leads to technical problems converting the html-format of the newsletter to a pdf format. Here, we want to suggest that we hand in an html-format of the newsletter to ACM HQ.
7. The GECCO web site based on tikiwiki CMS has reached a steady-state, thanks to Nadarajen Veerapen, the 2019 electronic media chair, who accepted to continue this year, and will add new functionalities. He will also ensure in the future smooth transitions of GECCO web sites from one year to the next.
8. The SIGEVO sustainability officer (Markus Wagner) provided a sustainability report which will also be publicly available on the SIGEVO page.

**SIGEVO FINANCES**

SIGEVO continues to be in good shape financially, with events not producing deficits. Our reserves are healthy, which will allow us to take the risk and running a hybrid GECCO in 2021. This year, SIGEVO gave out no student travel grants. A Call for innovative projects has been issued during GECCO closing session.

**AWARDS**

**Competitions**: No less than 11 competitions were held at GECCO-2020 with awards and prizes presented at the SIGEVO Annual Meeting. The areas of the competitions were:

* Competition on Single Objective Bound Constrained Numerical Optimization
* Competition on Single Objective Constrained Numerical Optimization
* Competition on the optimal camera placement problem (OCP) and the unicost set covering problem (USCP)
* Dota 2 1-on-1 Shadow Fiend Laning Competition
* Dynamic Stacking Optimization in Uncertain Environments
* Evolutionary Computation in the Energy Domain: Smart Grid Applications
* Evolutionary Multi-Task Optimization
* Game Benchmark Competition
* Competition on Niching Methods for Multimodal Optimization
* Industrial Challenge
* Open Optimization Competition (still accepts submissions until September)

**Humies Awards**: The most prominent competition at GECCO is the Humies Award for the best human-competitive application of Evolutionary Computation methods published in the last year. Strict criteria are applied for what work becomes eligible in the competition, and a panel of five independent judges is responsible for the selection of winners of $10,000 in cash prizes donated by Third Millennium Online Products Inc.

8 were selected as finalists and presented during GECCO. Three of them were awarded.

**GECCO Best Paper Awards** were given in different categories. The same rules as before applied to the nominations (the minimum submission numbers for a best paper award are 20, with smaller tracks collaborating to select a best paper among their union set.

**GECCO Impact Award**: The “SIGEVO Impact Award” is given every year to recognize up to 3 high impact papers that were published in the GECCO conference proceedings 10 years earlier. Criteria for selection are high citation counts and impact deemed to be seminal. Selection is made by the SIGEVO Executive Committee. The SIGEVO Impact award was given in 2020 to the paper “Comparing Results of 31 Algorithms from the Black-Box Optimization Benchmarking BBOB-2009”.

**GECCO Best Dissertation Award**: The SIGEVO Best Dissertation Award 2020 was given to Dennis Wilson. In addition, there are two honorary mentions for Martin Stefan Krejca and Koen von der Blom.

**SIGITE Annual Report**

**July 2019 - June 2020**

**Submitted by: Barry Lunt, Chair**

*Mission Statement*

SIGITE's mission is to provide a forum for the interaction of practitioners, educators and others in the field of Information Technology Education to exchange ideas and engage in activities that advance the knowledge of its members, the curriculum and teaching of information Technology and the development and transfer of innovative concepts and applications in teaching and pedagogy.

*2019 Annual Conference*

The 20th Annual Conference on Information Technology Education was hosted by the University of Washington-Tacoma and held in Tacoma, WA at the Tacoma Convention Center, October 2 – October 5, 2019. There were 88 submissions of papers, posters, panels, workshops, and lightning talks. Of these submissions, 8 of 23 applied papers were accepted (35%); 14 of 33 research papers were accepted (43%); 15 of 19 posters were accepted (79%), and 13 of 15 (87%) lightning talks were accepted. We also had 5 panels and 2 workshops. We had three high-profile keynote speakers - Fernando Maymi, Neal Meldrum and John Impagliazzo. New to this conference was a special day tailored for community college faculty, which was well received. Attendance was about 153, and though the conference came out financially in the red, it was a very successful conference in all other aspects, and the attendees rated the conference very positively.

At the 2019 SIGITE Conference, two best paper awards were presented:

|  |
| --- |
| 1. Hacking the Non-Technical Brain: Maximizing Retention in a Core Introductory IT Course, by Eric M. Sturzinger, Daniel S. Hawthorne, and Thomas Babbitt, all of the United States Military Academy.
 |

1. Deep Learning in the IT Curriculum, by Amy K. Hoover, Adam Spryszynski, and Michael Halper, all of the New Jersey Institute of Technology.

*Significant conference papers that have proven popular (as measured by download count):*

1. Project Design and Implementation for Digital Forensics Education, by Xinli Wang, Yan Bai, and Bryan Goda.
2. Human Risk Factors in Cybersecurity, by Tom Cuchta, Brian Blackwood, Thomas R. Devine, and Robert J. Niichel.
3. Fundamentals of Ethical Hacking and Penetration Testing, by Umar Mujahid Khokhar and Binh Tran.

*2020 Annual Conference*

The 21st Annual Conference on IT Education will be hosted by the University of Nebraska-Omaha and was originally planned to be in Omaha, Nebraska, October 7-9, 2020. With the COVID-19 pandemic, this has changed to be a virtual conference, with host and dates unchanged.

*Future Conferences*

* 2021 in Provo, Utah, hosted by Brigham Young University

**Significant programs that provided a springboard for further technical efforts**

The recently established practice of having a standing conference committee in addition to future conference hosts involved in the conference organization has shown benefits. This year’s conference had many activities for participants. We expect this further improvements and maturation in our conference offering.

The SIG played a key role in CC2020, with 3 members on the ACM Task Force for this effort. CC2020 is expected to be released 4Q of this year.

We continued our efforts to sponsor modest research efforts and have one paper submitted this year from those efforts. We plan to continue to invest in research that strengthens and informs our SIG and our members.

**A brief description of the SIG’s volunteer development process**

SIGITE continues to have an atmosphere of contribution amongst its members. Finding volunteers for various activities has never been a problem. We continue to use our standing and ad hoc committees as opportunities for members to “get a taste” of leadership.

**A brief summary of the key issues that the SIG membership will have to deal with in the next 2-3 years**

Attendance at our annual conference has been growing, but we still struggle with submissions. In 2019, we included a special track for research-oriented papers. Based on submissions, this proved quite popular and will be continued. Our annual conferences continue to be the premier event for IT faculty.

While our current membership is very active, the size of the SIG remains flat to slightly decreasing. We need to change that and grow the SIG. As part of this effort, we commissioned a study of IT programs in the USA and how closely they are aligned with the 2017 model curriculum; this will be used to help us reach out to our fellow programs and bring in more participation.

Professional accreditation: there are now over 70 institutions with IT programs accredited by CAC of ABET. This is the most ever, and we are encouraged that many IT programs are seeing the value of this accreditation.

**SIGLOG Annual Report**

**July 2019 – June 2020**

**Submitted by: Prakash Panangaden, Chair**

This is my first report as SIGLOG Chair, after taking over from Prakash Panangaden in July 2019.

The flagship conference for SIGLOG is LICS which in 2019 was held in Vancouver, B.C. Invited talks were by Nicole Schweikardt, Peter Selinger, Daniela Petrisan, and James Worrell, a small but significant step towards promoting diversity in the field. In addition, there were two noteworthy affiliated workshops sponsored by SIGLOG: The Logic Mentoring Workshop (LMW) targeted at students, and the Women in Logic (WiL) meeting. Both had an excellent program and successful meetings.

1. **Awards**

This was the fourth year that the Alonzo Church Award was given. It went to Murdoch J. Gabbay and Andrew M. Pitts for their fundamental results in nominal reasoning techniques. The citation reads as follows:

CITATION: For their ground-breaking work introducing the theory of nominal representations.

The LICS Test-of-Time Award Winners in 2019 were Jamie Gabbay, Andy Pitts, Marcelo Fiore, Gordon Plotkin, and Daniele Turi for their 1999 papers “*A new approach to abstract syntax involving binding*” and “*Abstract syntax and variable binding*”.

The Kleene Award for the best student paper at LICS went to Renaud Vilmart for his paper “*A Near-Optimal Axiomatization of ZX-Calculus for Pure Qubit Quantum Mechanics*”.

1. **Significant developments in Logic and Computation over the past year**

LICS does not have a general Distinguished Paper Award, which will be introduced for the first time at LICS 2021. As a result, it is difficult to isolate the main trends in the field for the year. The traditional fields of **Type Theory** and **Category Theory**, including **Homotopy Theory,** which is strongly influenced by both, are still major topics with new developments on their interactions. There were a number of important papers on the foundations of **Quantum Computing**, specifically on programming and reasoning. Finally, the interest in **Probabilistic Reasoning and Programming** is surging, partly because of its connections to data science and machine learning.

1. **Significant Programs**

SIGLOG continues its support of summer schools, student mentoring workshops and workshops for Women in Logic. These are part of a long-range effort to improve the diversity of the field.

1. **Innovative programs which provide service to our technical community**

Since the early part of 2020, the community had to deal with the travel restrictions imposed due to COVID-19. Moving supported events, including the LICS flagship conferences and affiliated workshops online required major innovations in their structure and delivery. These will be detailed in the next annual report although overall the outcomes were seen as positive.

1. **Broadening Participation**

The Logic Mentoring Workshop and the Women in Logic Symposium were already mentioned above. In addition, a concerted effort on program committee composition and balance of invited speakers was made for LICS. We are also in the process of collecting data on whether light double-blind reviewing for LICS has an impact on aspects of diversity (e.g., geographic, seniority, gender) of accepted papers.

1. **Key Issues**

The future of conferences and workshops in the area of logic and computation is on everyone’s mind and will be one of the key issues over the next few years. Once travel restrictions are lifted, should we go back to the “old” in-person model of conferences or should we look for new ways for researchers to communicate and debate their ideas? Perhaps not entirely unrelated are discussions on open access models of publications and efforts by the ACM leadership are appreciated and watched closely. Finally, the community has been lagging somewhat in awards and recognition for outstanding works, particularly those by students and early-career faculty. Introducing a Distinguished Paper Award following the models of flagship SIGPLAN conferences will be a first step towards potentially career-boosting awards that can also help outsiders better understand current trends in the field.

**SIGMETRICS Annual Report**

**July 2019 – June 2020**

**Submitted by: Giuliano Casale, Chair**

ACM SIGMETRICS brings together researchers and practitioners in the area of performance evaluation of computer systems and networks. The SIG promotes research in performance analysis techniques as well as the advanced and innovative use of known methods and tools to understand and improve performance and quality of service, seeking a balance between theoretical and practical issues.

SIGMETRICS concluded a very active and exciting year, which featured several activities to meet the needs of its membership. Some of the highlights for the year were as follows.

# Awards:

* The SIGMETRICS Achievement Award was awarded to Dr. Leandros Tassiulas of Yale University in recognition of his influential contributions to the foundations of network control and optimization with applications in computer and communication networks.
* The SIGMETRICS Rising Star Research Award was awarded to Dr. Kuang Xu of Stanford University for his fundamental research on information and resource allocation in large- scale stochastic systems.
* The SIGMETRICS Test of Time Award was presented to Devavrat Shah and Tauhid Zaman from MIT and Yale for their work "Detecting Sources of Computer Viruses in Networks: Theory and Experiment", published in the Proceedings of ACM SIGMETRICS 2010. This work provides a systematic study of the problem of finding virus sources in networks. The paper introduces the new notion of rumor centrality and shows it to outperform other network centrality notions in finding rumor sources in networks which are not tree-like.
* The 2020 ACM SIGMETRICS Best Paper Award was awarded to the paper “Rateless Codes for Near-Perfect Load Balancing in Distributed Matrix-Vector Multiplication” by Ankur Mallick (CMU), Malhar Chaudhari (Oracle Corporation), Utsav Sheth (Automation Anywhere), Ganesh Palanikumar (Apple Inc.), Gauri Joshi (CMU).
* The 2019 ACM SIGMETRICS Kenneth C. Sevcik Outstanding Student Paper Award went to the paper “Optimal Data Placement for Heterogeneous Cache, Memory, and Storage Systems” by Lei Zhang (Emory University), Reza Karimi (Emory University), Irfan Ahmad (Magnition), Ymir Vigfusson (Emory University).

# Conference and Workshops:

Like many other conferences, SIGMETRICS had to face the challenges posed by the pandemic that led to the cancellation of the physical in-person edition planned in Boston. Although it was not possible to enjoy the conventional conference experience, we have hosted instead a lightweight online conference format.

A short live web session was broadcasted to present our award talks, while the main conference papers were published as usual, accompanied by free videos that attracted over 5000 views during the conference week. A Slack channel was also offered to everybody and populated with comments on the videos and for further interaction by the attendees and the new participants.

Differently from most other venues, SIGMETRICS also leveraged its partnership with IFIP Performance to give the additional option to the authors to present their papers either at IFIP Performance 2020 or at SIGMETRICS 2021, in order to increase their chances to make their work visible and known.

The conference also hosted its traditional MAMA workshop which had a very good online attendance. Now in its 22nd edition, the MAMA workshop brings together researchers in mathematical, methodological, and theoretical aspects of performance analysis, modeling, and optimization.

SIGMETRICS also partners with SIGSOFT and SPEC as technical sponsor of the ICPE conference, and together with IEEE in IWQoS. We gave our support to the first online editions of these events, which were also very successful.

# Papers on emerging and new areas of performance analysis, measurement, and modeling:

Research published in SIGMETRICS typically focuses on performance evaluation, computer systems and networks. Technical areas of interest to the community include, but are not limited to, network performance, load balancing, systems, pricing, queueing, workload optimization, caching, control and resource allocation, memory, forecasting, graph analysis and learning.

The ACM SIGMETRICS 2020 conference accepted several papers on the areas listed above and featured work on exciting topics of increasing applied and theoretical interest, we mention in particular the best paper and best student paper award papers:

* In “Rateless Codes for Near-Perfect Load Balancing in Distributed Matrix-Vector Multiplication” by Ankur Mallick (CMU), Malhar Chaudhari (Oracle Corporation), Utsav Sheth (Automation Anywhere), Ganesh Palanikumar (Apple Inc.), and Gauri Joshi (CMU), the authors consider large-scale machine learning and data mining applications that require computer systems to perform massive matrix-vector and matrix-matrix multiplication operations that need to be parallelized across multiple nodes. The paper addresses the presence of stragglers – nodes that unpredictably slowdown or fail - by proposing a novel rateless fountain coding strategy.
* In “Optimal Data Placement for Heterogeneous Cache, Memory, and Storage Systems” by Lei Zhang (Emory University), Reza Karimi (Emory University), Irfan Ahmad (Magnition), Ymir Vigfusson (Emory University). The paper looks at this problem: which data should be cached in faster memory if it could instead be served directly from slower memory? The authors present CHOPT, an offline algorithm for data placement across multiple tiers of memory with asymmetric read and write costs. They show that CHOPT is optimal and can, therefore, serve as the upper bound of performance gain for any data placement algorithm.

# Broadening participation and significant activities and programs:

* For the first time this year, the SIGMETRICS Executive Committee broadened participation by introducing a set of subcommittees. These sub-committees are composed of board members and SIG members who accepted to volunteer for a one-year period. Their goals are to support SIG activities such as advising conference organizers, developing the conference format, improving the student engagement, improving equality & diversity in the SIG, and increasing the SIG visibility via social media, web and YouTube channels. The committee membership consists of 35 individuals, greatly broadening the participation of the community to the SIG activities.
* This year SIGMETRICS has also introduced a new partnership with the IFIP WG 7.3, with which we already co-organize the SIGMETRICS/Performance conference every three years. This partnership consists of ensuring continuity of the reviews between the two communities, so to ensure consistent and equitable treatment of papers that are resubmitted from a venue to the other. The initial trial of this model was very successful, and it is expected to continue.
* Last year, the SIG set as a goal to run an edition in a region outside the USA and Europe, so to understand how to increase our activity and membership in those regions The Executive Committee subsequently decided to locate the 2021 conference in Beijing, China. The program committee will include a strong representation of researchers from Asia/Pacific, which will hope will help to make the event highly visible in the region.

# Key issues for the next 2-3 years:

* Evolving our format to respond to the coronavirus outbreak. We will need to define a flexible format to be resilient to sudden outbreaks that may impede the events to take place with the traditional in-person format.
* The availability of videos and online interactions (e.g., via Slack) arising from the recent online events offers new opportunities to grow the community and develop a new style of interaction.
* In 2021 we will introduce for the first-time thematic tracks in our flagship conference. We will need to explore the community reaction and adjust our model over the next few years.
* Improving governance via a knowledge base. The SIG board has started and wants to continue to consolidate best practices and governance materials to provide a persistent knowledge base for future chairs and SIG boards.

# Other Issues

N/A.

**SIGMICRO ANNUAL REPORT**

**July 2019 – June 2020**

**Submitted by: Michael Gschwind, Chair**

The following are highlights of SIGMICRO's activities during fiscal year 2020.

**SIGMICRO** has worked to ensure the success of our flagship MICRO conference (in conjunction with co-sponsor, IEEE Technical Committee on Microarchitecture (TCµArch)). MICRO celebrated its 52nd anniversary last year in Columbus, Ohio. The conference offered an excellent technical program. Attendance was above levels seen in the past several years. SIGMICRO has also helped start and support several other major conferences since 2001: CASES, CGO, and Computing Frontiers. All are at present doing well as reported below. MICRO has gone through a transition period after its 50th anniversary conference in Boston, MA following anniversary festivities that highlighted a half century of growth of this successful conference, but also put a focus on the need to strengthen woman and minority representation and participation in conference leadership and planning. A newly appointed SIGMICRO SC, the SIGMICRO board, and TCuArch have been working in consultation with the larger MICRO community to define new MICRO bylaws to guide the MICRO conference in the future with a focus on technical quality and innovative research enabled by an emphasis on diversity and inclusion. As reported previously, the new MICRO SC bylaws were unveiled in time for MICRO 51 in Fukuoka, together with a detailed review of a community survey at the MICRO-51 business meeting.

As also reported below, we have a strong program to encourage attendance at our conferences by women and underrepresented minorities (URM), students and those facing financial hardship, with numerous travel grants provided to help defray cost of attendance, in addition to heavily discounted student registration rates.

SIGMICRO has instituted a new Distinguished Service Award. No award was given during the last fiscal year.

SIGMICRO awarded plaques to the four 2019 inductees to the Micro Hall of Fame (<https://www.sigmicro.org/micro-hall-of-fame/>): Frederic Chong, Jangwoo Kim, David Wentzlaff, Jishen Zhao.

**SIGMICRO CONFERENCE Activities**

**MICRO-52:** October 12-16, 2019. <https://www.microarch.org/micro5>[2/](https://www.microarch.org/micro52/)

SIGMICRO's flagship conference was quite successful with an excellent registration count with over 450 attendees. The conference received a record 344 submissions from all over the world. Of the 344 submissions, 79 were accepted with a 23% acceptance rate. There were also several workshops and tutorials: Tutorial on FireSim and Chipyard: End-to-End Architecture Research with RISC-V SoC Generators, Agile Test Chips, and FPGA-Accelerated Simulation on Amazon EC2 F1, OpenPiton with RISC-V Cores — A Hands-On Tutorial with the Open Source Manycore Processor, ONNC Compiler Porting and Optimization for NVDLA-Based Neural NEtwork Inference Engines, CHIPKIT: Tutorial on Agile Research Test Chips, High-Performance Architectures for Distributed Deep Learning, Career Workshop for Women and Minorities in Computer Architecture, MCAt: Combining Machine Learning and Control Theory for Computer Architecture, and Timeloop/Accelergy Tutorial: Tools for Evaluating Deep Neural Network Accelerator Designs. The main technical program included two “Poster Sessions” in addition to the regular paper presentations. In addition to traditional papers, two “lightning talks sessions” included 90 sec presentations of all the regular papers. The MICRO-52 conference allocated at least $27,000 for student travel grants, of which $5000was committed by ACM SIGMICRO. Additional student travel grants were awarded for attending the CAREER workshop for women and underrepresented minorities, of which a significant part was committed by ACM SIGMICRO. In addition to the official events we also facilitated a number of industry-sponsored social events targeted at welcoming underrepresented groups including the AMD Dessert Social Celebrating Diversity and Inclusion and the Under-Represented Minorities and Persons with Disabilities (URMD) Meet-Up & Dinner, sponsored by Microsoft.

MICRO attendees enjoyed excellent technical talks, keynotes, workshops, and tutorials.

The keynote speakers were: Prof. Krste Asanovic (UC Berkeley), Bill Dally (Nvidia), Prof. Lynn Conway (Intel)

The local organization and facilities were excellent. SIGMICRO polled attendees using surveymonkey.com as in prior years. The satisfaction levels were very high.

**Location**: Columbus, Ohio

**General Chair:** Prof. Radu Teodorescu, Prof. DK Panda (Ohio State U)
**Program Chair:** Prof. Tor Aamodt (U British Columbia), Reetuparna Das (U Michigan)

**Bob Rau Memorial Award Recipient:**

* Not Awarded

**Best Paper Award:**

Two best papers were recognized:

**Simba: Scaling Deep-Learning Inference with Multi-Chip-Module-Based Architecture**

Yakun Sophia Shao, Jason Clemons, Rangharajan Venkatesan, Brian Zimmer, Matthew Fojtik, Nan Jiang, Ben Keller, Alicia Klinefelter, Nathaniel Pinckney (NVIDIA); Priyanka Raina (Stanford University); Stephen G Tell and Yanqing Zhang (NVIDIA); William J. Dally (NVIDIA/Stanford); Joel Emer (NVIDIA, MIT); C. Thomas Gray and Brucek Khailany (NVIDIA); Stephen W. Keckler (NVIDIA and UT-Austin)

**Speculative Taint Tracking (STT): A Comprehensive Protection for Speculatively Accessed Data**

Jiyong Yu and Mengjia Yan (University of Illinois at Urbana-Champaign); Artem Khyzha and Adam Morrison (Tel Aviv University); Josep Torrellas and Christopher Fletcher (University of Illinois at Urbana-Champaign)

**CGO 2020:** February 22-26, 2020

<https://cgo-conference.github.io/cgo2020>; co-located with HPCA-2020 and PPoPP-2020

*Also Co-Sponsored by ACM SIGPLAN.*

**CGO** [**C**ode **G**eneration and **O**ptimization] was held in San Diego, CA. CGO 2020 featured three keynotes, a welcome reception / student poster session, and numerous workshops and tutorials.

**General Chair**: Jason Mars (U Michigan)

Lingjia Tang (U Michigan)

**Program Chairs**: Jingling Xue, UNSW Sydney

Peng Wu, Futurewei Technologies

**Keynotes**: Interdisciplinary Research at a Time of Pervasive Changes, Josep Torrellas (UIUC)

Scaling Parallel Programming Beyond Threads, Michael Garland (NVIDIA Research)

MLIR Compiler Infrastructure, Chris Lattner (SiFive) and Tatiana Shpeisman (Google)

**Tutorials and Workshops:**

* Science, Art, Voodoo: Using and Developing the Graal Compiler
* IMOP: A Self-Stabilizing Source-to-Source Compiler Framework for OpenMP C
* Women in Compilers and Tools Workshop
* LLVM Performance Workshop.
* Compilers for Machine Learning

**Best Paper Award**

"Testing Static Analyses for Precision and Soundness" by Jubi Taneja, Zhengyang Liu and John Regehr.

**Best Student Presentation Award**

Jubi Taneja.

**Test of Time Award**

"PinPlay: A Framework for Deterministic Replay and Reproducible Analysis of Parallel Programs" by Harish Patil, Cristiano Pereira, Mack Stallcup, Gregory Lueck and James Cownie.

**Student Research Competition Awards**

The SRC was chaired by Changhee Jung (Purdue University).

**CASES 2019:** October 13-18, 2019

<https://www.esweek.org/archive/home>

*in cooperation with ACM SIGBED*

**CASES** [**C**ompilers, **A**rchitecture, and **S**ynthesis for **E**mbedded **S**ystems] joined two other embedded systems conferences in 2006 to create a larger "*ESWeek"* grouping and promote cross-fertilization of efforts in the embedded area. The combination of conferences was a success, and *ESWeek* has been repeated ever since, with ESWEEK 2019 held in New York. As always, the paper selection process has been very competitive.

**Location**: New York

CASES is one of 3 Conferences in Embedded Systems Week: <http://www.esweek.org>

* **CASES**
* CODES+ISSS (Co-sponsored by ACM SIGDA and SIGBED)
* EMSOFT (Sponsored by ACM SIGBED)

Plus additional Symposia

**ESWeek General Chairs:**

* Petru Eles, Linköping University, SE
* Tulika Mitra, National University of Singapore, SG

**CASES Program Chairs:**

* Akash Kumar, Technische Universität Dresden, DE
* Partha Pratim Pande, Washington State Univ., US

Overall, the ESWEEK program in 2019 was spread across 6 days and included 3 conferences, plus 3 plenary keynotes, multiple other symposia, tutorials, workshops, and embedded panels.

**Computing Frontiers 2020:** June 1-10, 2020

<http://www.computingfrontiers.org/2020>

Computing Frontiers (CF) was held virtually this year. Maintaining the conference's high standard of quality, the Program Committee accepted only a small number of full papers, with additional authors invited to submit short papers. Specifically, of the over 100 submitted papers, after excluding incomplete submissions, 75 full papers and 20 short submissions have been sent to the review process. And all papers went through a thorough and rigorous peer-review process with 4 reviews per paper. In the end, out of the 75 submissions, only 24 full papers have been accepted and 8 original full submissions have been accepted as short papers. In addition, 6 out of the 20 short paper submissions have been accepted. In total, 14 short papers have been accepted and published 13 of them in the end (one canceled the invitation). Further, 12 out of the 24 full papers were also submitted to the artifact evaluation process, which was remarkable growth compared to the last edition, and 11 of them received one or more artifact evaluation badge(s). Computing Frontiers 2020 hosted two keynote talks (one by Prof. Shih-Chii Liu, and one by Dr. Steve Oberlin) and 1 workshop: Malicious Software and Hardware in Internet of Things (MaL-IoT ’20).

Unfortunately, due to the Covid-19 pandemic, the conference switched to a virtual event and various planned content such as a tutorial, a workshop, special sessions, and poster presentations have been cancelled. The CF20 Virtual Conference was free-of-charge for everyone thanks to the ACM-SIGMICRO support. Upon registration, the participants received the link to the CF20 Slack Workspace. The accepted papers were divided into thematic sessions (one per Slack Channel) and each paper was with a pre-recorded presentation of the talk. Attendees interacted with the authors on the Slack Channel. Thanks to the free-of-charge registration, many more people were attracted to the conference enlarging the CF community and gave the possibility to even younger researchers to access the conference program. Overall, 145 participants registered to the event and almost 800 messages have been exchanged which is a good indication of the degree of interaction among the participants.

There were workshops held in conjunction with CF 2020.

* Malicious Software and Hardware in Internet of Things

**General Co-Chairs:**

* Maurizio Palesi, University of Catania, IT
* Gianluca Palermo, Politecnico di Milano, IT

**Program Co-Chairs:**

* Cat Graves, Hewlett Packard Labs, US
* Eishi Arima, ITC University of Tokyo, JP

**Keynotes:**

* Shih-Chii Liu, Exploiting sparsity in event-driven deep neural network computing architectures
* Steve Oberlin, HPC + AI: The Future of High-Performance Computing in a Post-Moore’s Law World

The **Best Paper Award 2019,** dedicated to the memory of Stamatis Vassiliadis, was awarded to the paper:

*Scale-Out Beam Longitudinal Dynamics Simulations*

(Konstantinos Iliakis, Helga Timko, Sotirios Xydis and Dimitrios Soudris)

The **Best Video Awards** (in lieu of *Best Poster Awards*) were awarded to:

* Efficient Architecture Design for the AES-128 Algorithm on Embedded Systems

Rupam Mondal, Hau Ngo, James Shey, Ryan Rakvic, Owens Walker and Dane Brown

* Approximate Approximation on a Quantum Annealer

Irmi Sax, Sebastian Feld, Sebastian Zielinski, Thomas Gabor, Claudia Linnhoff-Popien and Wolfgang Mauerer

**SIGMICRO FUTURE PLANS**

We continue to improve the value of SIGMICRO to its members, resulting in significant membership growth over the past two years:

* Begun in 2008, SIGMICRO has been expanding the Micro Hall of Fame: <http://newsletter.sigmicro.org/micro-hof.txt/view>. The Micro Hall recognizes those authors with 8 or more papers since the conference inception in 1967. Since 2010, SIGMICRO has presented plaques at the conference to recipients.
* We have found other ways to add value:
	+ Increasing the allocation of surplus funds to provide for more student travel grants in SIGMICRO-sponsored conferences. The current executive committee has made a concerted effort to increase the level of student grants support for sponsored conferences.
	+ Providing funded sponsorship of worthy forums that promote the participation of women and minorities in research areas of relevance to SIGMICRO. **For example, SIGMICRO has been a sponsor of the CRA-W workshop in multiple recent years, and it also supported the Career Workshop for Minorities and Women in Computer Architecture since 2014. SIGMICRO has also supposed the CRA-W Graduate Cohort Program.**
	+ Providing a simplified mechanism for ACM and SIGMICRO membership when registering for our flagship MICRO Conference.
	+ Encouraging qualified members of SIGMICRO to become Senior and Distinguished ACM Members.
	+ Minimizing conflicts between conference dates.
	+ Encouraging and developing SIGMICRO members to become ACM Distinguished Lecturers.
	+ SIGMICRO joined SIGARCH in sponsoring CARES, Committee to Aid reporting on discrimination and harassment policy violations. <https://www.sigarch.org/benefit/cares/>

**LEADERSHIP:**

**Chair**

Michael Gschwind

Facebook AI

**Vice Chair**

Natalie Enright Jerger

Percy Edward Hart Professor of Electrical and Computer Engineering

University of Toronto

**Secretary-Treasurer**

Russ Joseph

Associate Professor

Northwestern University

**Executive Committee Members**

David Brooks

Haley Family Professor of Computer Science

Harvard University

Lieven Eeckhout

Professor of Electronics and Information Systems

Ghent University

**Past Chair**

Pradip Bose

Research Staff Member & Manager

IBM Thomas J. Watson Research Center

**Hall of Fame Director**

Erik Altman

Program Director – Computing as a Service, Chief-of-Staff to Giovanni Pacifici

IBM Thomas J. Watson Research Center

**Information Director**

Elvira Teran

Research Scientist

Intel Labs

**Membership Outreach Director**

Valentina Salapura

Master Inventor; Cloud Computing

IBM Thomas J. Watson Research Center

**Social Media Director**

Luwa Matthews

Postdoctoral Research Fellow

University of Michigan

**Web Director**

Yakun Sophia Shao

Research Scientist

NVIDIA

**SIGMIS Annual Report**

**July 2019 - June 2020**

**Submitted by: Fred Niederman, Chair**

Overall, the ACM SIGMIS is extremely viable and vibrant. We do face some challenges with both strengths and areas of growth as discussed below.

# 1. Awards Given

## SIGMIS Lifetime Achievement Award:

This year the SIGMIS Lifetime Achievement award was presented to **Dr. Thomas Ferratt,** Professor Emeritus University of Dayton, USA. This represents the second time the SIG has presented the award.

The announcement was posted in our conference proceedings (see appendix 1).

## Early Career Award:

This year we inaugurated the inaugural Early Career award and presented it to **Dr. Christian Maier**, University of Bamberg, Germany. The announcement was posted in our conference proceedings (see appendix 2).

## Conference Awards:

* **2020 Magid Igbaria Outstanding Conference Paper of the Year Award Recipients**

“Reducing Techno-Invasion and Techno-Overload: A Qualitative Study Analyzing Communication Measures and Rules” by Katharina Pflügner, Lea Reis, Christian Maier and Tim Weitzel (University of Bamberg) SIGMIS-CPR'20: Proceedings of the 2020 on Computers and People Research Conference, June 2020, pp 114–122https://doi-org.ezp.slu.edu/10.1145/3378539.3393855

* **Doctoral Travel Reimbursement Scholarships**

These were not awarded in 2020 due to postponement/cancellation of our annual conference due to Covid 19 pandemic.

**The DATABASE for Advances in Information Systems**

**Annual awards, Vol. 50.**

Each year, DATA BASE undertakes a nomination of Best Paper to the AIS Senior Scholar’s competition. This year, covering the content from Vol. 50, our Pre-Eminent Editorial Board members voted in favor of the following:

**Best Paper:**

Niederman, F., & March, S. T. (2019). Broadening the conceptualization of theory in the information systems discipline: A meta-theory approach. *The DATABASE for Advances in Information Systems*, 50(2), 18-44.

Dr. Fred Niederman serves as Shaughnessy Endowed Professor at Saint Louis University. His PhD is from the University of Minnesota in 1990. He has recently been named as the incoming editor in chief for Communications of AIS. His areas of research interest include: IS personnel, IS project management, philosophy of science applied to IS, qualitative IS research methods, effects on IS of mergers and acquisitions, global IS, and group collaboration and teams. He is proud to be counted as a member of the “circle of compadres” for the KMPG PhD Project.

Salvatore T. March is the David K. Wilson Professor of Management (Emeritus) at the Owen Graduate School of Management, Vanderbilt University. He received a BS in Industrial Engineering and MS and PhD degrees in Operations Research from Cornell University. His primary research interests are in the areas of Design Science, Database Design, Conceptual Modeling and Business Intelligence.

**Runner-up to best Paper:**

Gupta, S., & Bostrom, R. P. (2019). A Revision of Computer Self-Efficacy Conceptualizations in Information Systems. *The DATABASE for Advances in Information Systems*, 50(2), 71-93.

**Saurabh Gupta** is a doctoral graduate of the University of Georgia and is Professor and Ph.D. discipline lead at Kennesaw State University. He is actively involved in research that examines end-user computing, eLearning, knowledge management and the Theory of Information Systems.

**Robert Bostrom** is Professor of Information Systems at University of Georgia. Bostrom is a doctoral graduate of the University of Minnesota, and his research interests are focused on Business Process Management, high-performing individuals, facilitation, technology-supported learning, and effective design of organizations via integrating human and technological dimensions.

Also, each year, the Editors of DATA BASE analyze production statistics to identify candidates for Best Senior Editor and Best Reviewer. This year’s award winners are:

**Best Senior Editor:** Craig van Slyke

Craig van Slyke is Mike McCallister Eminent Scholar in Computer Information Systems for the College of Business at Louisiana Tech University in Ruston, Louisiana. Dr. van Slyke was a ‘jack of all trades’ in 2019, often tackling editorial responsibilities for papers that were atypical for the journal. He ensured a timely review processes for each manuscript.

**Best Reviewer:** Rene Moquin

Rene Moquin is a doctoral graduate of Baylor University. He is Assistant Professor at the Department of Computer and Information Technology in the Neil Griffin College of Business of Arkansas State University, in Jonesboro, Arkansas. Dr. Moquin undertook a larger than average number of review assignments and was both developmental and thorough in his assessment of the assigned manuscripts.

The editors-in-chief would like to thank all our senior editors, reviewers, and authors – without whom we could not produce the quality and innovation that our readership has come to expect. It is with much gratitude that we look forward to another year of *The DATABASE for Advances in Information Systems.*

# **2. Significant papers on new areas published in proceedings**

Because we did not move to a virtual setting when we cancelled our in-person conference, we did not have a live keynote address. However, the following were added to the digital library:

*Artificial Intelligence as Innovation Accelerator*

By Christian Mühlroth

*Updating the Information Systems Curriculum: The ACM / AIS IS2020 Joint Project*

By Paul M. Leidig and Greg Anderson

## Diverse Topics:

From among a wide variety of papers, two that stood out and illustrate the range of topics the membership addresses were:

*Analyzing Gender Bias in IT Job Postings: A Pre-Study Based on Samples from the German Job Market* by Stephan Böhm, Olena Linnyk, Jens Kohl, Tim Weber, Ingolf Teetz, Katarzyna Bandurka, and Martin Kersting

Abstract: In Germany, as in many other industrial nations, there is currently a shortage of skilled workers in the IT sector, also known as the “war for talents”. It is becoming increasingly difficult for companies to find suitable personnel using traditional recruiting instruments. Against this background, but also due to legal requirements, it is becoming more and more important that job postings are formulated in such a way that they have the greatest possible impact and no group of suitable applicants feels excluded. This study presents an approach that can be used to measure the gender bias in job postings. A respective tool could provide recruiters with an instrument to identify and prevent unwanted gender bias. In our study, the prototype of such a tool will be developed and initially applied to analyze job postings in the IT sector of the German job market in comparison to samples from the automotive and health care sectors. We present some key statistics of this analysis and an outlook on future work.

*Examining the Influence of Product Innovation on Social Media Platforms: Evidence from Instagram* by Reza Alibakhshi and Shirish C. Srivastava

Abstract: Grounding our discussion in social penetration and resource allocation theories, we propose and test the influence of introducing a new product, namely Instagram Story, on the usage and content creation behavior on the Instagram platform. Employing a quasi-experimental setting, we investigate the influence of introducing this new product on user engagement and content generation. Our findings identify the significant influence of Instagram Story on the user engagement with the original product i.e. Instagram Post and the overall resource expenditure by content providers. Through our study we delineate several important implications for both research and practice. Specifically, our study provides significant insights for platform owners and content providers to better design and implement new products on social media platforms.

# **3. Significant programs that provided a springboard for further technical efforts**

In 2019, we awarded one research grant award. This winning submission was from PhD candidate:

* Marfri Gambal, Aston Business School, Birmingham, United Kingdom, gambalm@aston.ac.uk

EXPLORING INNOVATION READINESS IN OUTSOURCING RELATIONSHIPS: CLIENT AND SERVICE PROVIDER PERSPECTIVES.

Supervisory team:

Aleksandre Asatiani, Aston Business School, Birmingham, United Kingdom, a.asatiani@aston.ac.uk

Julia Kotlarsky, The University of Auckland, Auckland, New Zealand, j.kotlarsky@auckland.ac.nz

Pawan Budhwar, Aston Business School, Birmingham, United Kingdom, p.s.budhwar@aston.ac.uk

Due to the cancellation of the in-person conference, we are still looking into alternative mechanisms by which their work can be presented to the community. Last year, we received only 2 proposals, however, this year the number was up to 14. The research award committee will release results on August 30 of the winning proposals. Our 2020 Committee members are: Tim Weitzel, Jeria Quesenberry, Michelle Kaarst-Brown, and Damien Joseph.

Fred Niederman chairs the committee.

# **4.** **Innovative programs which provide service to some part of your technical community**

This year while cancelling the in-person conference, we moved the doctoral consortium into a virtual mode. This included pre-word by the accepted doctoral students to generate discussion questions, as well as student presentations. The leadership team was comprised of five co-chairs who both organized and facilitated the 2020 Doctoral Consortium:

* Deborah Armstrong (djarmstrong@business.fsu.edu)
* Andreas Eckhardt (andreas.eckhardt@ggs.de)
* Indira Guzman (indira.guzman@trident.edu)
* Michelle Kaarst-Brown (mlbrow03@syr.edu)
* Tim Weitzel (tim.weitzel@uni-bamberg.de)

## Presentations were by the following five doctoral student participants:

* AJ Lauer - Occupational Culture, Identity, and Career Commitment in High Performance Computing
* Sebastian Schötteler -Evolution of Enterprise Social Media Networks: A Research Proposal
* Leonard Przybilla - Investigating Social Phenomena in IT Project Teams as Dynamic Entities
* Maximilian Haug - Mass Communication on Social Media: The Case of Fake News
* Alexandra Thompson - Exploring the Roles and Contributions of Participants as Designers in Projects Utilizing Augmented Reality

# 5. Events or programs that broadened participation either geographically, or among under-represented members of your community. We continue to co-sponsor the ICIS conference each December where we support the best doctoral dissertation in information systems award, host a reception, and staff a booth primarily to promote our publication, DATABASE. We also fund the annual best PhD dissertation award for AIS. Last year we were the only group invited to introduce these doctoral students to the opportunities of our program. We are planning the 2021 conference to be in Nuremberg Germany. This continues a tradition of frequent annual meetings outside the US. It also represents an effort to capitalize on the groundwork done for this year’s conference that we could not actualize.

# 6. A very brief summary of the key issues that SIG membership will have to deal with in the next 2-3 years.

**Finances**

Over the past 20 years due to strong revenues from the digital library, modest annual profits from our annual conference, and frugal management of expenses the SIG achieved significant budget surpluses. However, this may have come at the cost of less than needed reinvestment in new programs and services. Over the past 3 years we have budgeted for investing in stronger support for our publication, greater support for doctoral student travel to our conference, new awards, and a new research grant. This has resulted in stronger conference attendance, a stronger publication, and enthusiasm for our programs. However, at some point the current investments will need to be used, at least in part, to enhance current revenue streams or create new ones. We still have a significant amount of funds available for continued investment, but in the long run this will need to be of concern to the SIG leadership.

**The DATABASE for Advances in Information Systems**

Our publication, The DATABASE for Advances in Information Systems, continues a concerted marketing campaign of research conference visibility focused on impact and intellectual innovation. We have distributed 4 issues regularly for many years. Last year (2018) we added a 5th issue focused on cybersecurity which has already been distributed. We plan to add 5th issues for the next two coming years. Our current co-editors, Thomas Stafford and Deborah Armstrong have been settling into the role and are preparing initiatives to move the journal forward. Note that we achieved a citation index above 1.0 for the first time. This represents the achievement of a significant milestone for the journal.

In recent years, a new section of *philosophy of science* and another on *research methods* (particularly path analysis) have been added to updating the strategic direction of the publication. Note also that submissions continue to increase, pressuring the review system, however, editors are recruiting new associate editors as needed. We are also moving from requiring university host institutions from funding publication related expenses such as proofreading and hosting booths at key conferences to taking these on within the SIG. We expect that this will provide much greater support for the publication team and extend their ability to increase quality and inform the community of our efforts.

We continue seeking a way that allows AIS and ACM to extend distribution of DATABASE to AIS members. Due to the nature of revenue streams and business models, these discussions are sensitive, but we are hopeful that this can be developed as a greater conduit for mutual benefit. We are also looking at ways to contract with ACM for a broader range of editorial services despite being categorized as a “newsletter” rather than journal.

## Social Media and Communications:

SIGMIS has a Facebook page (https://www.facebook.com/acmsigmis) and a LinkedIn profile (https://www.linkedin.com/groups/5148399) and our new Twitter account (https://twitter.com/acmsigmis).

As these are relatively new, we haven’t yet developed a thorough sense of their effectiveness or how to best use them to communicate the right amount and type of information with members, but we continue to enhance our presence in the social media arena.

## 2021 SIGMIS Conference:

We have begun the planning for the 2021 conference and are considering returning to a rotation from western US, to Midwest, to East Coast, to Germany (or alternative outside of US site). The idea is to be able to schedule further ahead and to regularize our conference processes. Because our schedule was disrupted, we are seeking to return to Nuremberg next year and push other locations back. We are also looking at alternatives if we are unable to resume in-person conferences in a timely manner and what providing services to our membership will look like in a wholly online world.

## Collaborations:

Damien Joseph continues to provide excellent leadership of the in-cooperation program with other groups seeking our support relative to their conferences. It turns out there are a much larger number than expected of requests in this area and we want to redesign our approach. It takes some effort to evaluate each of these in detail and decide whether our support is warranted as well as how to generate more benefit to our members.

SIGMIS was in cooperation with the following 12 conferences:

1. CDTI '19: International Conference on Computing and Digital Technologies Innovation

2. CHIRA 2019 – 3rd International Conference on Computer-Human Interaction Research and Applications

3. 9th International Conference on cloud computing and services science

4. CSEDU '19: International Conference on Computer Supported Education

5. DATA 2019 - 8th International Conference on Data Science, Technology and Applications

6. ENASE '19: 14th International Conference on Evaluation of Novel Approaches to Software Engineering

7. FEMIB '19: International Conference on Finance, Economics, Management and IT Business

8. HEALTHINF '19; International Conference on Health Informatics

9. ICEIS '19: 21st International Conference on Enterprise Information Systems

10. ICIS '19: International Conference on Information Systems

11. Kmiks '19: lnternational Conference on Knowledge Management, Information and Knowledge Systems

12. SBSI '19: XV Brazilian Symposium on Information Systems

We have begun a process of seeking out collaborations with AIS special interest groups particularly regarding leadership and diversity/inclusion. The strategy is to make focused events and activities of interest to ACM SIGMIS members available before or during all major MIS conferences – ICIS, HICSS, AMCIS, ECIS, and PACIS – as well as our own standalone conference. This is slower going than expected but I anticipate will continue to grow over the next few years.

## Strategic Focus:

In terms of strategy, we have reasserted central interest in IS personnel, users in organizations and society, leadership, and inclusion. We also welcome for both the conference and publication a wide range of MIS topical areas including ethics, all aspects of work, and IS entrepreneurship. The question will be whether it will be more effective to focus more narrowly on traditional topics or to continue expanding the range of issues we deal with.

## ELECTIONS:

It is clear that at least two and potentially all the current elected officers will not be returning for another election cycle. I have recruited two experienced and well-respected members of the SIG community to serve as a nominating committee and will supply them with a long list of people to contact for possible candidacy. We have an unusually strong set of people who would serve well if they can be persuaded to take on this responsibility.

# Appendix 1 – Lifetime Achievement Award

1. **2020 ACM SIGMIS CPR**

We are pleased to announce that Dr. Thomas W. Ferratt, Professor Emeritus at the University of Dayton, is the recipient of the 2020 ACM SIGMIS CPR Lifetime Achievement Award. He served in leadership roles, including Chair, Conference Chair, and Program Chair, with ACM’s Special Interest Group on Computer Personnel Research (SIGCPR). Subsequent to its merger with SIGMIS, he continued to serve in leadership roles with the CPR Conference. Consistent with the conference theme, a major stream of his research has focused on the management of information systems professionals. His research has been published and featured in a variety of publications, including *MIS Quarterly,* *Information Systems Research*, *Journal of the Association for Information Systems*, *Journal of Management Information Systems*, *MIS Quarterly Executive*, *Communications of the ACM*, *The DATA BASE for Advances in Information Systems*, *Information and Management*, *Communications of the AIS*, *Academy of Management Journal*, *Human Relations*, *Decision Sciences*, and *Computerworld*.

His 2000 *MIS Quarterly* paper with Bob Roepke and Ritu Agarwal, “Aligning the IT Human Resource with Business Vision: The Leadership Initiative at 3M”, received first place in the 1998 SIM Paper Competition. More recently, his 2016 paper with Fred Niederman and Eileen Trauth, “On the Co-Evolution of Information Technology and Information Systems Personnel,” in *The Data Base for Advances in Information Systems*, received a 2017 Senior Scholars AIS Best Information Systems Publications Award,

Dr. Ferratt’s academic career, beginning with his doctoral program at The Ohio State University in 1970, now spans 50 years. Prior to retirement at the end of 2016, he was at the University of Dayton for thirty years (1986-2016), where he served as an associate dean (1997-2000) and held the Sherman-Standard Register Endowed Chair in Management Information Systems from 2003 until his retirement. He also was on the faculty at Drake University (1974-84), where he served as a department chair (1980-82), a visiting faculty at Indiana University (1984-86), and a visiting scholar at the University of Southern California (2015).

He served as an Associate or Senior Editor on the editorial boards of MIS Quarterly, Information Systems Research, Journal of the Association for Information Systems, and The DATA BASE for Advances in Information Systems. He has collaborated on three books, serving as co-author with Ritu Agarwal of Coping with Labor Scarcity in Information Technology – Strategies and Practices for Effective Recruitment and Retention (1999), co-editor with Fred Niederman of IT Workers – Human Capital Issues in a Knowledge-Based Environment (2006), and, most recently, co-author with Jerry Power of The Real-Time Revolution – Transforming Your Organization to Value Customer Time (2019).

# Appendix 2 – Early Career Award



# Appendix 3 – Dissertation of the Year Award Winner

Sagar Samtani

Assistant Professor, [Indiana University](https://scholar.google.com/citations?view_op=view_org&hl=en&org=18243465982490009522)

**Dissertation Title:** “Developing Proactive Cyber Threat Intelligence from the Online Hacker Community: A Computational Design Science Approach”.

**Synopsis:** has afforded modern society with unprecedented benefits. Unfortunately, malicious hackers often exploit these technologies for cyberwarfare, hacktivism, espionage, or financial purposes, costing the global economy over $450 billion annually. To combat this issue, many organizations develop Cyber Threat Intelligence, or knowledge about key hackers and emerging threats. Despite CTI’s value experts note that existing approaches are reactive in nature. Thus, cyber-attacks remain on an unfortunate uptick. CTI experts have suggested studying the international and ever-evolving online hacker community to address these concerns. However, online hacker community platforms, specifically forums, contain tens of thousands of unstructured, un-sanitized text records. Existing CTI analytics and behavioral and economic methodologies employed in extant IS cybersecurity inquiries were not designed for such data characteristics.

This dissertation presents four essays that adopt the design science approach to develop a series of novel CTI computational IT artifacts to solve a salient CTI issues. Essay I sets the foundation by developing a novel data and text mining framework to automatically extract and categorize malicious hacker exploits. Essay II expands upon this by automatically linking exploits and vulnerabilities detected by modern vulnerability scanners with a novel algorithm, the Exploit-Vulnerability Deep Structured Semantic Model. Essay III leverages graph convolutional networks and autoencoders to develop a novel deep learning architecture to identify the hackers and communities. Essay IV extends the model presented in essay III to identify emerging hacker exploits. Beyond the practical contributions provided by the presented IT artifacts, this dissertation offers numerous design principles to guide future computational cybersecurity IS research and other analytics related research inquiries.



**SIGMM Annual Report**

**July 1, 2019 to June 30, 2020 Submitted by: Alan Smeaton, Chair**

**Mission**: SIGMM provides an international interdisciplinary forum for researchers, engineers, and practitioners in all aspects of multimedia computing, communication, storage, and application.

1. **Awards:**

SIGMM gives out three awards each year and these were as follows:

* SIGMM 2019 Technical Achievement Award was given to Professor Mubarak Shah for his outstanding and pioneering and continued research contributions in the areas of multimedia content analysis and multimedia applications, for leadership in education, and for outstanding and continued service to the multimedia community.
* SIGMM 2018 Rising Star Award was given to Dr. Ting Yao for his significant contributions in activity recognition and video captioning.
* SIGMM 2018 Outstanding PhD Thesis in Multimedia Computing Award was given to Abdelhak Bentaleb for a thesis entitled “Enabling Optimisations of Video Delivery in HTTP Adaptive Streaming” at the National University of Singapore, Singapore.

SIGMM has established and has received SGB approval for a new SIGMM Test of Time Paper Award. Given annually, this award recognizes the authors of a paper published either 10, 11 or 12 years previously at an SIGMM sponsored or co-sponsored conference which has had the most impact and influence on the field of Multimedia in terms of research, development, product or ideas. The initial award will be made in October 2020. In this inaugural year,  we will also announce a set of up to 15 papers, each published at a SIGMM conferences each year prior to 2008 as “honourable mentions” which could have been considered as strong candidates in their respective year of publication, if there had been an award for that year.

1. **Significant Papers:**

The SIGMM flagship conference, ACM Multimedia 2019, was held in Nice, France and presented the following awards:

* Best Paper: Audiovisual Zooming: What You See Is What You Hear by Arun Asokan Nair, Austin Reiter, Changxi Zheng and Shree Naya
* Best Student Paper: Human-imperceptible Privacy Protection Against Machines by Zhiqi Shen, Shaojing Fan, Yongkang Wong, Tian-Tsong Ng and Mohan Kankanhalli.

The 11th ACM International Conference on Multimedia Systems (MMSys 2020), was held in Amherst, MA, USA, June 2020, and presented the following awards:

* Best paper: **QuRate: power-efficient mobile immersive video streaming** by **Nan Jiang, Yao Liu, Tian Guo, Wenyao Xu, Viswanathan Swaminathan, Lisong Xu, Sheng Wei**
* Best Workshop paper: **PC-MCU: point cloud multipoint control unit for multi-user holoconferencing systems** by **Gianluca Cernigliaro, Marc Martos, Mario Montagud, Amir Ansari, Sergi Fernandez**
* Best Open Dataset and Software Paper: Kvazaar 2.0: Fast and Efficient Open-Source HEVC Inter Encoder by Ari Lemmetti, Marko Viitanen, Alexandre Mercat, Jarno Vanne
* Best Demo and Industry Paper: **A pipeline for multiparty volumetric video conferencing: transmission of point clouds over low latency DASH** by **Jack Jansen, Shishir Subramanyam, Romain Bouqueau, Gianluca Cernigliaro, Marc Martos Cabre, Fernando Perez, Pablo Cesar**

The International Conference in Multimedia Retrieval (ICMR) 2020 was scheduled for Dublin, Ireland in June 2020 but because of Covid-19 has been deferred to October 2020.

The 8th ACM Workshop on Information Hiding and Multimedia Security was held in June 2020 and presented the following paper awards:

* **What if Adversarial Samples were Digital Images?** b**y Benoit Bonnet, Teddy Futon, Patrick Bas**
* **Simulating Suboptimal Steganographic Embedding** by **Christy Kin-Cleaves, Andrew D. Ker**
* **Steganography by Minimizing Statistical Detectability; The cases of JPEG and Color Images** by **Remi Cogranne, Quentin Giboulot, Patrick Bas**

In addition to the above, SIGMM presented the 2018 ACM Transactions on Multimedia Computing, Communications and Applications (TOMM) Nicolas D. Georganas Best Paper Award to the paper Deep Bi-directional Cross-triplet Embedding for Online Clothing Shopping (ACM TOMM vol.14 Issue 1, January 2018) by Shuhui Jiang, Yue Wu, Yun Fu.

1. **Significant Programs that Provide a Springboard for Further Technical Efforts**
* SIGMM provided support for student travel through grants, at all our SIGMM-sponsored conferences. SIGMM also re-arranged the way our student travel grants are awarded by centralizing the process rather than have a fixed a priori allocation for each conference. Henceforth for physical conferences and workshops there will be no pre-defined cap on the number of student travel awards for a conference as students apply through a SIGMM centralized process.
* As in previous years, SIGMM had a call for proposals for finding of special initiatives. Many of these were for events at our (physical) conferences like lunches and breakfasts for women and for early career researchers but some were for support for technical activities which we were glad to help with.
1. **Innovative Programs Providing Service to Some Part of Our Technical Community**
* SIGMM continued our effort to physically co-locate conferences and other events and this included workshops co-located with conferences and TPC meetings for conferences at other conference, thus saving further travel costs.
* SIGMM ran a Conference Ambassador Program. Following an open call, applicants submitted a case for SIGMM to fund them to attend a non-SIGMM event which they attended, identified a paper at that conference of interest to the multimedia community and invited that presenter to re-present their paper at the 2019 MULTMEDIA Conference. Two such presentations took place in 2019.
1. **Events or Programs that Broaden Participation**
* The first conference in the new series Multimedia Asia which took place in Beijing, China, in December 2019, consolidating two existing multimedia-focused conferences in Asia under the sponsorship and governance of SIGMM.
* SIGMM continued our program of encouraging social media interaction at our events where we invite conference attendees to post on social media about papers, demos, talks, etc. that they think are most thought provoking and forward looking at the event. The most active of these are rewarded with a free registration at a future SIGMM-sponsored conference.
1. **Issues for SIGMM in the next 2-3 years**
* As with all SIGs the big issue for SIGMM is the move from physical to virtual conferences and other events and the knock-on effect that has on dissemination of scientific results, training and development of early career researchers, recognition of career progression and achievements at all levels, and SIG finances. We are delighted to be contributing to ACM’s coordination of responses to this through the virtual conferences taskforce and other interventions from ACM HQ which have helped SIGMM in these turbulent times. We are also heartened by the across-the-board rise in activity levels at online conferences where we are seeing large increases in the numbers of paper submissions and attendance levels. It appears that we will settle down and find the best way to do online events which maximizes payback for presenters and attendees. We may not be quite there yet, but we are getting there.
* Improving the diversity of the community continues to be an essential aspect to maintaining our importance and relevance, including diversity in gender, in geographical location, and in many other facets.
* The availability of open datasets and grand challenge competitions held at our conferences and workshops has been a huge catalyst to the development of multimedia analysis, indexing, retrieval etc. and have, in turn, helped developments in machine learning which powers most of artificial intelligence these days. The imbalance caused by the fact that these datasets originate from the corporate sector remains as both an opportunity for us to do research on large real-world datasets otherwise unavailable to us, as well as being a threat to the balance between corporate influence and independence. There is no silver bullet solution to this, but it is something we need to be aware of.
* We regularly highlight the difficulties caused by a significant portion of our conference proceedings not being used as input into CSRankings, a metrics-based ranking of Computer Science institutions primarily in the US. Despite our best efforts we have not succeeded in doing this. Publishing at venues which are considered in CSRankings’ operation is important to much of our community and the experience of other SIGs and support of ACM on making this case would be welcome.

**SIGMOBILE FY'20 Annual Report**

# **July 2019 – June 2020**

**Submitted by: Marco Gruteser, Chair**

The purpose of ACM SIGMOBILE is to promote research and development by bringing together researchers and practitioners and fostering interest in the mobility of systems, users, data, and computing. SIGMOBILE will address the above spectrum of topics, sharing one common theme - mobility. The group's technical scope reflects the emerging symbiosis of portable computers and wireless networks, addressing the convergence of mobility, computing and information organization, its access, services, management, and applications.

In the past few years, mobile computing has developed into a fast moving, topical, and exciting area of computer science and engineering. Supporting the mobile computing and wireless networking research community, SIGMOBILE sponsors multiple successful conferences and workshops (e.g., MobiCom, MobiSys, MobiHoc, SenSys, UbiComp, PerDis, SEC, and HotMobile) that are well attended by its members, and generating high-quality and widely cited publications. These are valuable services for SIGMOBILE’s members and the community, resulting in a strong Special Interest Group.

SIGMOBILE’s Executive Committee (EC) in this period comprised of:

* Chair: Prof. Marco Gruteser (Google / Rutgers University, New Brunswick, USA)
* Vice Chair: Prof. Jason Flinn (Facebook / University of Michigan, Ann Arbor, USA).
* Secretary: Prof. Giovanni Pau (Sorbonne Universite, France)
* Treasurer: Prof. Falko Dressler (TU Berlin, Germany)
* Past Chair: Prof. Suman Banerjee (University of Wisconsin, Madison, USA)

The past 6 months have been like no other and significant effort has focused on mitigating financial risks due to conference contracts executed before COVID-19 spread, while maintaining continuity of our conference programming by shifting to virtual events for the remainder of the year. Still, many of SIGMOBILE’s programs operated relatively unaffected.

# **Awards**

SIGMOBILE has several awards that it bestows on community members. In addition to the Outstanding Contributions Award (OCA) for career-long achievements, the Rockstar award for early career achievements, the Distinguished Service Award for service to the community, the Doctoral Dissertation Award for best PhD work in the field, the Test of Time award for papers that had a significant influence in the community, and various best paper awards at the leading conferences. In addition, SIGMOBILE also recognizes some of the best work in the current year, as identified by a selection committee, as the Research Highlights of SIGMOBILE.

Some of the notable award winners are mentioned below.

**Outstanding Contributions Award**: Marty Cooper, for seminal contributions to the conception, practice, and adoption of portable telephony.

**Distinguished Service Award**: Prof. Eyal de Lara (Univ. of Toronto), for outstanding leadership in creating SIGMOBILE’s GetMobile magazine.

**Rockstar Award**: Prof. Nic Lane (Oxford), for contributions to the understanding of how resource-constrained mobile devices can robustly understand, reason, and react to complex user behaviors and environments through new paradigms in learning algorithms and system design.

**Dissertation Award**: Wenguang Mao (UT Austin) for the dissertation entitled "Acoustic Sensing on Smart Devices", Runner Ups: Yasaman Ghasempour (Rice) for the dissertation entitled "Next-Generation Wireless Systems for Joint Communication and Sensing in Millimeter-Wave and Terahertz Spectrum" and Elahe Soltanaghaei (Virginia) for the dissertation entitled "Sensing the Physical World Using Pervasive Wireless Infrastructure

The **SIGMOBILE Test of Time award** was selected by a committee chaired by Prof. Tanzeem Choudhury. The committee comprising Prof. Deepak Ganesan, Prof. Prabal Dutta, Dr. Ben Greenstein, Dr. Lama Nachman, Dr. James Scott selected the following article:

Jason Flinn and M. Satyanarayanan, “Energy-aware adaptation for mobile applications”, ACM Symposium on Operating Systems Principles (SOSP), 1999.

* + This paper describes how an OS and applications can collaborate to adapt energy use on a mobile device. While at the time this was new ground, the approaches it presents are now simply standard practice, in the devices and apps we use every day. It is remarkable how prescient this 1999 paper was, and how well its ideas have stood the test of time. For example, the hardware and software approaches to energy adaptation it proposes are now commonplace, and the applications it analyses (browser, voice recognition, video player and maps) are still ubiquitous. This paper presaged a huge amount of work in energy adaptation by both academia and industry, and the area remains of core interest to SIGMOBILE.

# Research Highlight Papers

The SIGMOBILE research highlights committee chaired by Prof. Heather Zheng selected the following papers as papers that combine a broad appeal significant results.

Nam Bui, Nhat Pham, Jessica Jacqueline Barnitz, Phuc Nguyen, Hoang Truong, Taeho Kim, Anh Nguyen, Zhanan Zou, Nicholas Farrow, Jianliang Xiao, Robin Deterding, Thang Dinh, and Tam Vu, “eBP: A Wearable System For Frequent and Comfortable Blood Pressure Monitoring From User’s Ear,” ACM MobiCom 2019.

* + Frequent blood pressure (BP) assessment is key to the diagnosis and treatment of many severe diseases, such as heart failure, kidney failure, hypertension, and hemodialysis. Current "gold-standard'' BP measurement techniques require the complete blockage of blood flow, which causes discomfort and disruption to normal activity when the assessment is done repetitively and frequently. Unfortunately, patients with hypertension or hemodialysis often have to get their BP measured every 15 minutes for a duration of 4-5 hours or more. The discomfort of wearing a cumbersome and limited mobility device affects their normal activities. In this work, we propose a device called eBP to measure BP from inside the user's ear aiming to minimize the measurement's impact on users' normal activities while maximizing its comfort level. eBP has 3 key components: (1) a light-based pulse sensor attached on an inflatable pipe that goes inside the ear, (2) a digital air pump with a fine controller, and (3) a BP estimation algorithm. In contrast to existing devices, eBP introduces a novel technique that eliminates the need to block the blood flow inside the ear, which alleviates the user's discomfort. We prototyped eBP custom hardware and software and evaluated the system through a comparative study on 35 subjects. The study shows that eBP obtains the average error of 1.8 mmHg and -3.1 mmHg and a standard deviation error of 7.2 mmHg and 7.9 mmHg for systolic (high-pressure value) and diastolic (low- pressure value), respectively. These errors are around the acceptable margins regulated by the FDA's AAMI protocol, which allows mean errors of up to 5 mmHg and a standard deviation of up to 8 mmHg.

Haojian Jin, Jingxian Wang, Swarun Kumar and Jason Hong, "Software Defined Cooking using a Microwave Oven," MobiCom 2019.

* + Despite widespread popularity, today’s microwave ovens are limited in their cooking capabilities, given that they heat food blindly, resulting in a non-uniform and unpredictable heating distribution. We present SDC (software-defined cooking), a low-cost closed-loop microwave oven system that aims to heat the food in a software-defined thermal trajectory. SDC achieves this through a novel high-resolution heat sensing and actuation system that uses microwave-safe components to augment existing microwaves. SDC first senses thermal gradient by using arrays of neon lamps that are charged by the Electromagnetic (EM) field a microwave produces. SDC then modifies the EM-field strength to desired levels by accurately moving food on a programmable turntable towards sensed hot and cold spots. To create a more skewed arbitrary thermal pattern, SDC further introduces two types of programmable accessories: microwave shield and susceptor. We design and implement one experimental test-bed by modifying a commercial off-the-shelf microwave oven. Our evaluation shows that SDC can programmatically create temperature deltas at a resolution of 21 degrees with a spatial resolution of 3 cm without accessories and 183 degrees with

the help of accessories. We further demonstrate how an SDC-enabled microwave can be enlisted to perform unexpected cooking tasks: cooking meat and fat in bacon discriminatively and heating milk uniformly.

Gyuhong Lee, Jihoon Lee, Jinsung Lee, Youngbin Im, Max Hollingsworth, Eric Wustrow, Dirk Grunwald, and Sangtae Ha, "This is Your President Speaking: Spoofing Alerts in 4G LTE Networks," MobiSys 2019.

* + Modern cell phones are required to receive and display alerts via the Wireless Emergency Alert (WEA) program, under the mandate of the Warning, Alert, and Response Act of 2006. These alerts include AMBER alerts, severe weather alerts, and (unblockable) Presidential Alerts, intended to inform the public of imminent threats. Recently, a test Presidential Alert was sent to all capable phones in the United States, prompting concerns about how the underlying WEA protocol could be misused or attacked. In this paper, we investigate the details of this system, and develop and demonstrate the first practical spoofing attack on Presidential Alerts, using both commercially available hardware as well as modified open source software. Our attack can be performed using a commercially-available software defined radio, and our modifications to the open source NextEPC and srsLTE software libraries. We find that with only four malicious portable base stations of a single Watt of transmit power each, almost all of a 50,000-seat stadium can be attacked with a 90% success rate. The true impact of such an attack would of course depend on the density of cell phones in range; fake alerts in crowded cities or stadiums could potentially result in cascades of panic. Fixing this problem will require a large collaborative effort between carriers, government stakeholders, and cell phone manufacturers. To seed this effort, we also discuss several defenses to address this threat in both the short and long term.

Shichao Yue and Dina Katabi, "Liquid Testing with Your Smartphone," MobiSys 2019.

* + Surface tension is an important property of liquids. It has diverse uses such as testing water contamination, measuring alcohol concentration in drinks, and identifying the presence of protein in urine to detect the onset of kidney failure. Today, measurements of surface tension are done in a lab environment using costly instruments, making it hard to leverage this property in ubiquitous applications. In contrast, we show how to measure surface tension using only a smartphone. We introduce a new algorithm that uses the small waves on the liquid surface as a series of lenses that focus light and generate a characteristic pattern. We then use the phone camera to capture this pattern and measure the surface tension. Our approach is simple, accurate and available to anyone with a smartphone. Empirical evaluations show that our mobile app can detect water contamination and measure alcohol concentration. Furthermore, it can track protein concentration in the urine, providing an initial at-home test for proteinuria, a dangerous complication that can lead to kidney failure.

György Kalmár, George Wittemyer, Péter Völgyesi, Henrik Barner Rasmussen, Miklós Maróti, and Ákos Lédeczi, "Animal-Borne Anti-Poaching System," MobiSys 2019.

* + Wildlife poaching is a critical driver of biodiversity loss and population decline. Poaching is a threat to high value, large-bodied species, such as elephants, that are slow to reproduce. Increasingly, GPS tracking collars serve as a key tool for studying the behavior and monitoring wildlife globally, including application to anti-poaching efforts. However, collars provide indirect information on poaching, such as immobility, that is often not available in real time. In parallel to collar development, acoustic gunshot detection systems have proliferated in the military and law enforcement. Static systems in wildlife areas have been deployed for detecting poaching, but such systems do not scale geographically. This paper explores the idea of fusing GPS tracking collars with acoustic shockwave detectors to create an animal-borne anti-poaching sensor. A real-time alert of gunshots near elephant groups would enable rangers to respond immediately to such events. The two main technical challenges to such a system are battery life and detection accuracy. The paper presents a prototype designed for elephants that has great promise in addressing these significant technical challenges.

# **Significant and Innovative Programs**

The first half of the SIGMOBILE conference year featured a highlight with the 25th MobiCom anniversary gathering in Los Cabos, Mexico. SIGMOBILE supported community building and special programs at MobiCom and took advantage of the location in Mexico with a program that allowed local students to attend and receive community mentoring (further detailed under broadening participation).

After COVID-19 made it impossible to gather safely, the SIGMOBILE community reimagined the MobiSys conference originally planned for Toronto, Canada as its first virtual event. Given the novelty of the virtual format and that plans and contracts for an in-person conference were already in place, it took a special effort by the conference organizers, general co-chairs Eyal de Lara and Iqbal Mohomed, in consultation with the steering committee, SIGMOBILE, and ACM to make this shift a success. MobiSys opened for virtual attendance free of charge and a record 432 participants attended the conference opening session.

SIGMOBILE continues to invest in *GetMobile,* SIGMOBILE’s significantly transformed quarterly publication, which is a revamped version of the ACM SIGMOBILE Mobile Computing and Communications Review (MC2R). Each issue of GetMobile consists of a set of regular sections curated by a committed group of editors and has won a lot of praise from the broad community for improved quality of content and articles. GetMobile is catching up from COVID-induced delays and added several great young editors over the past few issues. The magazine’s content remains excellent thanks to the editors’ effort under the leadership of Landon Cox and the incredible staff of Donna and JoAnn.

Based on a generally positive experience to date, the MobiCom conference continues its experiment with a multiple submission deadline model with a summer and winter deadline each year. Papers submitted to both deadlines undergo the same rigorous review process with decisions rendered at a technical program committee meeting after the reviewing phase for each deadline. Due to COVID, program committee meetings are being conducted remotely but the community is also considering meeting in person again.

SIGMOBILE’s YouTube channel has become even more impactful with the shift to virtual talks. With speaker approval, recordings from our major conferences and workshops are archived on this channel. This content is publicly available, and anyone can now watch the talks from our conferences at their convenience, even if they were not able to attend the conference itself. Engagement on this channel is rising significantly, with a 20% increase in views and large increase in subscribers. Many of our viewers are from countries that are traditionally underrepresented at our conferences, including Asia and Latin America. This channel thereby allows us to reach many more constituents than our conferences and workshops currently do.

# **Events or Programs to Broaden Participation**

SIGMOBILE operates a program to broaden participation that involves several key activities: workshops designed for underrepresented groups, informal lunch meetings and mentoring, and student travel grants. To ensure coordination and stewardship of resources, SIGMOBILE is advised by its broadening participation committee. The role of the committee is to:

* Advise organizers and SIG officers on best practices regarding broadening participation
* Prioritize broadening participation-related funding requests within a given budget
* Develop measurable objectives for our broadening participation program and track its progress
* Help publicize SIGMOBILE’s activities (through website, email, Twitter, for example)
* Coordinate among the different activities and groups that SIGMOBILE sponsors

The committee members are Prof. Ana Aguiar (Univ. of Porto), Prof. Rajesh Balan (SMU), Prof. Katia Jaffres- Runser (IRIT), Prof. Robin Kravets (UIUC), and Dr. Thyaga Nandagopal (NSF).

SIGMOBILE took the opportunity to hold a version of a mentoring workshop started as the Asian Students Symposium on Emerging Technologies (ASSET) with MobiCom 2019 in Los Cabos, Mexico. About ~20 local students were selected for the workshop, coupled with significant SIGMOBILE travel grant that enabled the students to also attend the main conference and further network with the community. Under the leadership of Rajesh Balan, community members Min, Chulhong, Eric Rozner, Ganesh Ananthanarayanan, Tam Vu, Swarun Kumar, Robert LiKamWa, Shubham Jain, Aarathi Prasad, Ardalan Amiri Sani, Mariya Zheleva, and Vaishnavi Ranganathan mentored students at the workshop. Generally, the goal of ASSET is to empower students from developing countries and regional universities with technical writing, speaking, and presentation skills and allow them to experience a top-tier research conference. Each ASSET participant usually prepares a short research project writeup, record a 30s elevator pitch research presentation video, and present a research poster. These artefacts were evaluated by faculty mentors (in small groups) and the students iterated their submissions based on this feedback. The feedback from the student participants was very positive and we plan to organize more such events, particularly also to broaden our reach to other continents.

In partnership with the N2Women group, we hosted an N2Women dinner meeting at MobiCom’19. We also frequently hold meetings at other main conferences, often in the form of a lunch meeting and occasionally as

a full day workshop. These serve as a forum for researchers from underrepresented groups to network and to discuss career questions. Meetings are organized by a graduate student under the mentorship of a senior researcher from the community. The graduate student is usually supported with a travel grant.

SIGMOBILE operates a student grant program that co-sponsors students travel costs to SIGMOBILE conferences. Conference organizers are asked to explicitly consider the goal of broadening participation when selecting travel grant awardees. The program only operated in the 1st half of the reporting period, due to the shift to virtual conferences in the 2nd half.

Budget permitting, SIGMOBILE also occasionally sponsors activities from partner organizations focused on broadening participation, such as the CRA-W conference.

# **Key issues facing the community**

This year certainly was like no other we have experienced before. We were fortunate that the community came together around our virtual MobiSys event and that the financial losses due to existing contracts could largely be avoided due to the hard work of conference organizers with ACM and SIGMOBILE support. The key question surrounding our conference community is to what extent to plan for in-person conferences for 2021 and to what extent to continue in a virtual model. For potential in-person events, a further challenge is how to estimate attendance for such events.

# **Summary**

Mobile computing and wireless networking are among the fastest growing fields within computer science and engineering, and as a result SIGMOBILE continues to be a strong, successful, well-supported organization. During the first half of this reporting period we hosted the anniversary MobiCom event in Los Cabos, Mexico that featured intensified broadening participation activities with a mentoring workshop focused on local students associated with special travel grants and a mentoring dinner in partnership with N2Women. The 2nd half of the year was focused on converting SIGMOBILE conferences to a virtual format and holding MobiSys 2020 as our first virtual event with record participation.

The SIG’s conferences and workshops are well attended, creating a wealth of publications for the ACM digital library and the SIG’s members. The community continues to create significant impact both technically and to the broader society through research, education, and other activities.

**SIGOPS Annual Report**

**July 2019 – June 2020**

**Submitted by: Shan Lu, Chair**

SIGOPS addresses a broad spectrum of issues associated with operating systems research and development. Although many of the members are drawn from industry, academic and government professionals are also represented in the membership.

**Overview**

This was the first year for Shan Lu (University of Chicago) as Chair, Phillip Stanley-Marbell (University of Cambridge) as vice-chair, and Brad Karp (University College London) as Secretary-Treasurer. We took these roles over from Robbert van Renesse (Cornell) as Chair, Shan Lu (University of Chicago) as Vice Chair, Kaoutar El Maghraoui (IBM Research) as Treasurer.

SIGOPS has three chapters, EuroSys, SIGOPS de France, and ChinaSys, that are continuing well.

SIGOPS publishes a newsletter, *Operating Systems Review (OSR)*, which focuses on specific research topics or research institutions, manages an electronic mailing list, and maintains a web site: <http://www.sigops.org/>. The current co-editors of Operating System Review are Christopher J. Rossbach (The University of Texas, Austin), Robbert van Renesse (Cornell University), and Kishore Pusukuri (Santa Clara University), with the latter two joining the editorial board last year. They have just finished the latest issue of OSR covering special topics on “Formal Methods and Verification” (Volume 54, Number 1, July 2020).

SIGOPS encourages participation in conferences and career building activities for young members of the community. For example, substantial funding was provided in the past year as travel grants for students to attend conferences ($40K for SOSP, $20K for ASPLOS, 7500 euro for EuroSys, $10K for APSys, etc.) and diversity workshops ($20K for the Diversity Workshop at SOSP, $18K for CRA-W Grad Cohort, 4000 Euro for Women-in-Computing workshop by SIGOPS-France, 7000 Euro for womENcourage, $10K for CS Awareness Event in Ghana), with many of these grants targeted at women and underrepresented minorities. In the second part of the past report year, with many conferences going virtual due to the pandemic, SIGOPS has worked with these conferences to help the conferences go virtual.

Professional SIGOPS membership dues remain at $10, and student membership is just $5 per year.

**Awards**

The SIGOPS Dennis M. Ritchie Doctoral Dissertation Award 2019 committee was run by Hank Levy (Chair, U Washington), Ed Bugnion (EPFL), and Robbert van Renesse (Cornell). The award went to Sebastian Angel’s "[Unobservable communications over untrusted infrastructure](http://hdl.handle.net/2152/68824)" (UT Austin), advised by Michael Walfish. Michael Schwarz (Graz University of Technology) was the recipient of the EuroSys Roger Needham Ph.D. Award 2019; Dr. Bojie Li (University of Science and Technology of China) and Dr. Xiaowei Zhu (Tsinghua University) were the recipients of the ChinaSys Doctoral Dissertation Awards.

The Mark Weiser Award 2019 was awarded to [Ion Stoica](https://people.eecs.berkeley.edu/~istoica/), University of California, Berkeley. The committee consisted of Jeff Dean (Google, Chair), Andrea Arpaci-Dusseau (UWisc), and Robert Morris (MIT).

SIGOPS Hall of Fame Awards that honor the most influential papers that appeared in SIGOPS conferences at least ten years in the past went to “*Debugging in the (Very) Large: Ten Years of Implementation and Experience”, which was published at SOSP 2009 from Microsoft and “seL4: formal verification of an OS kernel”, which was published at SOSP 2009 from* NICTA, UNSW, Open Kernel Labs, and ANUin 2019. The selection committee was run by Rich Draves (Microsoft), Robbert van Renesse (Cornell), and Tom Anderson (UWashington).

The ACM Student Research Competition was run at SOSP 2019, chaired by Angela Demke Brown (UToronto) and Jeanna Neefe Matthews (Clarkson U). Luis Gerhorst from Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) was the undergraduate gold medalist, and Samyukta Yagati from MIT was the graduate gold medalist.

**Conferences**

* SOSP 2019 was held in Deerhurst Resort, Huntsville, Ontario, Canada in October 2019. It was 100% sponsored by SIGOPS. The General Chairs were Tim Brecht (U Waterloo) and Carey Williamson (U Calgary) and the Program Chairs were Remzi Arpaci-Dusseau (U Wisc) and Yuanyuan Zhou (UCSD).
* Collocated with SOSP 2019, we sponsored the following workshops:
	+ The 2019 Workshop on Supporting Diversity in Systems Research.
	+ AI systems.
	+ The 10th Workshop on Programming Languages and Operating Systems (PLOS).
	+ The 4th Workshop on System Software for Trusted Execution (SysTex)
* Planning for the next *ACM Symposium on Operating Systems* (SOSP), which is scheduled for October 2021 in Koblenz, Germany, is underway. The local organizing team will be Antoine Kaufmann, Keon Jang, and Peter Druschel. Robbert van Renesse and Nickolai Zeldovich as Program Chairs.
* The SIGOPS Asia-Pacific Workshop on Systems(APSys) was held in August 2019 in Hangzhou, China. SIGOPS is 100% sponsored by SIGOPS.
* The Annual ACM SIGACT-SIGOPS Symposium on Principles of Distributed Computing (PODC) was held in Toronto, Canada, in July 2019. PODC was sponsored 50% by SIGOPS and 50% by SIGACT.
* The ACM Symposium on Cloud Computing (SOCC) was held in Santa Cruz, California, in November 2019. SOCC is sponsored 50% by SIGOPS and 50% by SIGMOD.
* The ACM Conference on Embedded Networked Sensor Systems (SenSys) was held November 2019 in New York City. Sensys is sponsored 10% by SIGOPS, SIGARCH, SIGMETRICS and SIGBED, 30% by SIGMOBILE, and 30% by SIGCOMM.
* Planning for the next HotOS is ongoing, although slightly slowed by the pandemic.
* The next few conferences all had to become virtual due to the COVID-19 pandemic, but all have been quite successful as virtual conferences.
	+ The Eurosys Conference (Eurosys 2020) was planned to be held in Greece in April, sponsored by SIGOPS and Eurosys.
	+ The ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS) was planned to be held in Lausanne, Switzerland in March 2020. ASPLOS is sponsored 25% by SIGOPS, 50% by SIGARCH, and 25% by SIGPLAN.
	+ The ACM SIGPLAN/SIGOPS international conference on Virtual Execution Environments was planned to be collocated with ASPLOS in Switzerland. VEE is sponsored 50% by SIGPLAN and 50% by SIGOPS.
	+ The ACM International Systems and Storage Conference (SYSTOR) was planned to be held in Haifa in June 2020. It is 100% sponsored by SIGOPS. The organizers postponed it into October and now have decided to go virtual.
* In-cooperation events included Usenix events FAST 2020, and NSDI 2020.

**Selection of Recent Initiatives**

* Mentoring activities, where students can sign up to have one-to-one chat with senior researchers, were conducted at SOSP 2019 (<https://sosp19.rcs.uwaterloo.ca/mentoring.html>), organized by Natacha Crooks (Berkeley) and Malte Schwarzkopf (Brown). It was well received and is planned to be repeated at future SIGOPS conferences.
* Artifact evaluation was conducted for the first time at SOSP 2019 (<https://sysartifacts.github.io/index.html>), chaired by Vijay Chidambaram (UT Austin) and Baris Kasikci (UMichigan). It was well received and is planned to be held for EuroSys 2021 and OSDI 2020 as well.
* SIGOPS is committed to keeping our community welcoming and inclusive. With ACM’s blessing, we have created a SIGOPS CARES committee (Committee to Aid Reporting on Discrimination and Harassment Policy Violations) <http://www.sigops.org/cares/>. The committee is co-chaired by Andrea Arpaci-Dusseau (Wisconsin) and Dilma Da Silva (Texas A&M).
* SIGOPS has formed its Communications of ACM Research highlight selection committee, run by Jeff Mogul (Google), Lorenzo Alvisi (Cornell), and Jinyang Li (NYU). We expect that this committee will start to regularly nominate papers published at SIGOPS conferences to the Research Highlight section of Communications of ACM.
* SIGOPS has started its Blogs (<https://www.sigops.org/blog/>). Vijay Chidambaram (UT Austin) and Baris Kasikci (UMichigan) currently serve as the Chief Editors for the SIGOPS Blog.

**Key issues to deal with**

* How to broaden the participation is a key issue. SIGOPS has worked on this through various types of Diversity Workshops, travel grant programs, and others. However, more effort is needed
* The pandemic has had a deep impact to our conferencing scheme. How to hold conferences in 2021 and beyond pandemic; how to hold PC meetings beyond pandemic is an open question.
* There have been concerns regarding the frequency and acceptance rate of SIGOPS’ flagship conference, SOSP. There is an on-going discussion about whether we should change the frequency of this conference, currently once every other year, without affecting its high quality.

**SIGSAC Annual Report**

**July 2019 - June 2020 Submitted by: Ninghui Li, Chair**

1. Awards that were given out

2019 SIGSAC Outstanding Innovation Award: Wenke Lee 2019 SIGSAC Outstanding Contributions Award: Jonathan Katz 2019 SIGSAC Doctoral Dissertation Award: Felix Günther 2019 SIGSAC Doctoral Dissertation Award Runners-Up: Yupeng Zhang 2019 SIGSAC Doctoral Dissertation Award Runners-Up: Paul Pearce

2. Significant papers on new areas that were published in proceedings

3. Significant programs that provided a springboard for further technical efforts

4. Innovative programs which provide service to some part of your technical community

5. Events or programs that broadened participation either geographically, or among under- represented members of your community.

6. A very brief summary of the key issues that SIG membership will have to deal with in the next 2-3 years.

With the pandemic, all SIGSAC conferences became virtual this year, and there was some financial loss that SIGSAC needs to cover. There is a great deal of uncertainty regarding SIGSAC conferences next year.

**SIGSIM Annual Report**

**July 2019 – June 2020**

**Submitted by: Margaret Loper, Chair**

***The Mission of SIGSIM is to become the world-wide leader in providing professional services on modeling and simulation. SIGSIM actively seeks to meet this objective in a variety of ways, including sponsorship of both the Winter Simulation Conference (WSC) and the SIGSIM Conference on Principles of Advanced Discrete Simulation (SIGSIM PADS).***

**Awards**

* SIGSIM Distinguished Contributions Award was given at the 2019 Winter Simulation Conference to Dr. Andreas Tolk of MITRE.
* WSC PhD Colloquium Award was given to Sebastian Rojas-Gonzalez for the paper “Multiobjective Ranking and Selection with Correlation and Heteroscedastic Noise”
* 20 Travel Awards (up to $1k in expenses) to PhD students to attend WSC 2019 in National Harbor, MD
* Due to Covid-19, the ACM SIGSIM-PADS Conference scheduled for Miami, FL in May was held online. Therefore, no travel awards were made to PhD students.

**Significant Papers**

* 2020 SIGSIM-PADS Best Paper Award "Precise Virtual Time Advancement for Network Emulation" by Vignesh Babu and David Nicol (University of Illinois Urbana, USA)
* 2019 MSWiM Best Paper Award “SEE: Scheduling Early Exit for Mobile DNN Inference during Service Outage” by Zizhao Wang, Wei Bao and Dong Yuan (The University of Sydney, Australia); Liming Ge (University of Sydney, Australia); Nguyen H. Tran and Albert Zomaya (The University of Sydney, Australia)
* 2019 MSWiM Best short paper “COLiDeR: A Cross-Layer Protocol for Two-Path Relaying” by Raphael Naves and Gentian Jakllari (University of Toulouse, France); Hicham Khalife and Vania Conan (Thales Communications & Security, France); André-Luc Beylot (University of Toulouse, France)

**Significant Programs**

* SIGSIM-PADS joined the ACM Reproducibility Initiative last year by successfully creating a reproducibility committee to evaluate papers. We continued with the effort again this year, and lessons learned will be shared with other SIGSIM sponsored conferences.
* Continual expansion of MSKR: [www.sigsim.org](http://www.sigsim.org) (Balci, Editor in Chief)

**Innovative Programs**

* We created an informal committee to help identify SIGSIM members who are qualified to apply for ACM Fellow status. The committee is composed of ACM Fellows, and their purpose is to mentor candidates on the process and requirements.
* SIGSIM Digest started 08/14: digest.sigsim.org (Fishwick, Chair). Current Subscribers: 60 individuals + SIGSIM email list, # of posts: 403, # of views: 9,133 cumulative. The last post to the Digest was 2020/04/22. The owner has decided to stop maintaining this site, so it will be retired.
* Twitter feed started 02/15, Current Followers: 299, up from 261 last year
* M&S education material is linked from the MSKR, including access to courseware, videos, and M&S area resources (e.g., books, journals, conferences)
* We have a new Digital Media committee that is responsible for Email, Twitter, LinkedIn, and SIGSIM Digest. They will make suggestions on outreach and help grow our visibility.

**Events or programs that broadened participation either geographically, or among under-represented members of your community**

* Will hold 2020 International Conference on Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM) conference in Alicante, Spain

**Summary of the key issues that SIG membership will have to deal with in the next 2-3 years**

1. Increasing the registration for the annual SIGSIM-PADS conference

Attendance at the conference has been inconsistent (’13 – 66, ’14 - 43, ’15 – 54, ’16 – 65, ’17 – 45, ’18 - 46, ’19 – 54). This year the conference was online, and 99 people registered to attend. We were not able to track how many unique individuals attended sessions, but we did have good attendance at paper sessions. Next year we need to advertise the conference outside of the traditional SIGSIM-PADS attendees to gain visibility with new M&S researchers, and collaborate more with other SIGSIM-sponsored conferences (WSC and MSWiM) to identify opportunities for cross-over activities and advertising.

1. Coordination & Collaboration Across SIGSIM Conferences

Our three major conferences are Winter Simulation Conference (WSC) – 25% sponsor, SIGSIM Conference on Principles of Advanced Discrete Simulation (SIGSIM-PADS) – 100% sponsor, and the Modeling, Analysis and Simulation of Wireless and Mobile Systems (MSWiM) Conference – 100% sponsor. There is some sharing across these conferences, but it is mostly done by individuals that attend two or more of the conferences. We need to bring the steering committees together across these conferences to share knowledge about issues such as PhD colloquiums, travel grants, paper awards, reproducibility initiative, etc. Doing this should bring more collaboration across the communities, help us optimize conference planning, and share lessons that benefit all three conferences. We also need to integrate conference operation and reporting into the executive committee discussions.

**SIGSOFT Annual Report**

**July 2019 – June 2020
Submitted by: Thomas Zimmermann, Chair**

*SIGSOFT seeks to improve our ability to engineer software by stimulating interaction among practitioners, researchers, and educators; by fostering the professional development of software engineers; and by representing software engineers to professional, legal, and political entities.*

This report provides a summary of key SIGSOFT activities over the past year. The COVID-19 pandemic had a significant impact on the world and the SE community. Our hearts go out to all those affected by COVID-19. Since the start of the pandemic, students and professors switched to online teaching, software engineers now work from home, and many conferences had to be cancelled or switched to virtual formats. It is difficult to predict the long-term effects of the pandemic but SIGSOFT remains committed to support its members during this difficult time. On a positive note, despite the pandemic, the SIGSOFT community had a strong technical year with many significant contributions and SIGSOFT remains financially healthy.

**AWARDS GIVEN OUT**

The SIGSOFT awards program recognizes the many achievements of the software engineering community.

* The ACM SIGSOFT **Outstanding Research** **Award** was presented to **Michael Ernst** for *contributions to programmer productivity through software analysis, testing, and verification.*
* The ACM SIGSOFT **Influential Educator Award** was presented to **Greg Wilson** for *life-long contributions to software engineering education throughout the computing industry.*
* The ACM SIGSOFT **Distinguished Service Award** was presented to **Nenad Medvidović** for *significant service to the software engineering community and for leading important community innovations.*
* The ACM SIGSOFT **Early Career Research Award** was presented to **Claire Le Goues** for *groundbreaking work on automated program repair, impact on industrial practice, and service to the software engineering research community.*
* TheACM SIGSOFT **Outstanding Doctoral Dissertation Award** was presented to **Rachel Tzoref-Brill**, Tel Aviv University, for the thesis Comprehension and Evolution of Combinatorial Models and Test Plans,
* The ACM SIGSOFT **Impact Paper Award** recognizes a paper published in a SIGSOFT conference at least 10 years earlier that has had exceptional impact on research or practice. This year, the award went to the paper Model Checking Programs, authored by **Willem Visser, Klaus Havelund, Guillaume Brat, SeungJoon Park**, published in the Proceedings of the 15th IEEE International Conference on Automated Software Engineering (ASE 2000, Grenoble, France, 11-15 Sep 2000).

In addition to the Impact Paper Award, many SIGSOFT conferences also have **Most Influential Paper Awards**, also known as “test of time awards”, which are given to papers that have appeared at a particular conference. At ICSE the SIGSOFT co-sponsored conference with the longest track record of awarding Most Influential Papers, the award went to the ICSE 2010 paper “Oracle-Guided Component-Based Program Synthesis”, by **Susmit Jha, Sumit Gulwani, Sanjit A. Seshia, Ashish Tiwari**. The ESEC/FSE conference recognized two papers from ESEC/FSE 2009: “Fair and balanced?: Bias in Bug-fix Datasets”, by **Christian Bird, Adrian Bachmann, Eirik Aune, John Duffy, Abraham Bernstein, Vladimir Filkov, Premkumar Devanbu** and “Cross-project Defect Prediction: A Large Scale Experiment on Data vs. Domain vs. Process”, by **Thomas Zimmermann, Nachiappan Nagappan, Harald Gall, Emanuel Giger, Brendan Murphy**.

We recognized the new ACM Distinguished Members and Fellows from the SIGSOFT community. **Valerie Barr, Andrew B. Begel, Eric Bodden, Yuriy Brun, David Lo, Shan Lu, Manu Sridharan** have been elevated to **Distinguished Member**; and **Matthew B. Dwyer** has been elevated to **ACM Fellow** for contributions to the specification and analysis of software.

Many of SIGSOFT’s sponsored meetings also presented **Distinguished Paper Awards**. SIGSOFT allows up to 10% of the accepted papers to be selected for this award. The list of recognized papers is available at http://sigsoft.org/awards/distinguishedPaperAward.html

**SIGNIFICANT PAPERS ON NEW AREAS**

Software plays a prominent role in different application domains as well as other research areas in computer science, such as human-computer interaction, mobile computing, artificial intelligence, distributed systems, and more recently big data and machine learning. Everything depends on software today. As examples for the breadth of the software engineering field, we highlight below distinguished papers from the ESEC/FSE 2019 and ICSE 2020, two of the main general software engineering conferences sponsored by SIGSOFT. The trend over the past few years to adopt machine learning (ML) and artificial intelligence (AI) in software has continued. This has led to research both on leveraging ML and AI to improve the way software is being built (AI4SE), but also to research that incorporate SE concepts into ML and AI processes and workflows (SE4AI). An increased emphasis has been placed on testing and debugging systems that are based on ML and AI. Automated program repair, test generation, and reproducing bugs continue to remain popular topics in the SE research community. In recent years, a strong focus was placed on better understanding software developers. Two examples of papers in this area are on understanding how developers learn new languages and how cognitive biases influence decision making. Over the next few years it can be expected that the SE community will make further progress on being able to build more reliable, robust and fair software systems at a larger scale, while increasing the productivity of software developers at the same time.

*Distinguished papers at ESEC/FSE 2019.*

* Thomas Durieux, Fernanda Madeiral, Matias Martinez, and Rui Abreu: Empirical Review of Java Program Repair Tools: A Large-Scale Experiment on 2 141 Bugs and 23 551 Repair Attempts
* Claudio Menghi, Shiva Nejati, Khouloud Gaaloul, and Lionel Briand: Generating Automated and Online Test Oracles for Simulink Models with Continuous and Uncertain Behaviors
* Matthieu Jimenez, Renaud Rwemalika, Mike Papadakis, Federica Sarro, Yves Le Traon, and Mark Harman: The Importance of Accounting for Real-World Labelling When Predicting Software Vulnerabilities
* Oscar Chaparro, Carlos Bernal-Cárdenas, Jing Lu, Kevin Moran, Andrian Marcus, Massimiliano Di Penta, Denys Poshyvanyk, and Vincent Ng: Assessing the Quality of the Steps to Reproduce in Bug Reports
* Pengyu Nie, Rishabh Rai, Junyi Jessy Li, Sarfraz Khurshid, Raymond J. Mooney, and Milos Gligoric: A Framework for Writing Trigger-Action Todo Comments in Executable Format
* Sen He, Glenna Manns, John Saunders, Wei Wang, Lori Pollock, and Mary Lou Soffa: A Statistics-based Performance Testing Methodology for Cloud Applications

*Distinguished papers at ICSE 2020.*

* Souti Chattopadhyay, Nicholas Nelson, Audrey Au, Natalia Morales, Christopher Sanchez, Rahul Pandita, Anita Sarma: A Tale from the Trenches: Cognitive Biases and Software Development
* Ru Zhang, Wencong Xiao, Hongyu Zhang, Yu Liu, Haoxiang Lin, Mao Yang: An Empirical Study on Program Failures of Deep Learning Jobs
* Rafael-Michael Karampatsis, Hlib Babii, Romain Robbes, Charles Sutton, Andrea Janes: Big Code! = Big Vocabulary: Open-Vocabulary Models for Source Code
* Junjie Wang, Ye Yang, Song Wang, Yuanzhe Hu, Dandan Wang, Qing Wang: Context-aware In-process Crowdworker Recommendation
* Nischal Shrestha, Colton Botta, Titus Barik, Chris Parnin: Here We Go Again: Why Is It Difficult for Developers to Learn Another Programming Language?
* Zhen Dong, Marcel Böhme, Lucia Cojocaru, Abhik Roychoudhury: Time-travel Testing of Android Apps
* Zishuo Ding, Jinfu Chen, Weiyi Shang: Towards the Use of the Readily Available Tests from the Release Pipeline as Performance Tests. Are We There Yet?
* Carlos Bernal-Cárdenas, Nathan Cooper, Kevin Moran, Oscar Chaparro, Andrian Marcus, Denys Poshyvanyk: Translating Video Recordings of Mobile App Usages into Replayable Scenarios
* Jieshan Chen, Chunyang Chen, Zhenchang Xing, Xiwei Xu, Liming Zhu, Guoqiang Li, Jinshui Wang: Unblind Your Apps: Predicting Natural-Language Labels for Mobile GUI Components by Deep Learning
* Peixin Zhang, Jingyi Wang, Jun Sun, Guoliang Dong, Xinyu Wang, Xingen Wang, Jin Song Dong, Ting Dai: White-box Fairness Testing through Adversarial Sampling

**SIGNIFICANT PROGRAMS**

Over the past several years, SIGSOFT has introduced several programs to aid and expand our membership. Two signature programs are the Webinars and the CAPS funding.

* The SIGSOFT **Webinar series** remains very popular; in the past year, SIGSOFT organized five webinars on topics such as joys and frustration of software engineering, automated debugging and profiling of AAA games, agile development, and continuous integration and delivery.
* Through the **Conference Aid Program for Students (CAPS),** SIGSOFT provided travel support to conferences for dozens of graduate and undergraduate student-members as well as support to defray the costs of childcare for all members of our community (faculty qualify as well). CAPS has been extended to help defray travel costs of a certain number of professional SIGSOFT members as well. The new program launched in Fall 2019. Overall, the CAPS support allocation was doubled in 2019-2020.

SIGSOFT continued the implementation of the **Conference Surplus Reinvestment**, which was launched in FY19. The surplus reinvestment for Year N of a conference is 25% of the Conference Net from Year N-2 and 25% of the Conference Net from Year N-3. A limitation of the program is that it currently requires a significant administrative overhead.

SIGSOFT also continued the special projects program for projects that benefit SIGSOFT members, future SIGSOFT members or members of the software engineering community. An example of a special project was the **Summer School on Modelling and Programming**, from January 19-24, 2020 in Stellenbosch, South Africa. The school had 45 students and 10 speakers and assistants to learn about several aspects of software modeling: What is software modelling? How can we bridge the gap between a model and the program? How are these tools and techniques used in industry? The school was organized by Judith Bishop, Richard Paige, Willem Visser, and Bruce Watson for running a wonderful school. ([www.ssmodpro.org](http://www.ssmodpro.org)). Another special project was **SE Garage**, which goal is to provide a central archive of curated tools developed in SE research ([www.segarage.org](http://www.segarage.org)).

SIGSOFT also appointed Andreas Zeller as the **Climate Change Liaison**, who oversees increasing the sustainability of SIGSOFT conferences and to coordinate with SIGSOFT conferences, ACM, and the other SIGs to reduce the climate impact of our work.

Martin Robillard was appointed as **Research Highlights Chair** with the charter to define a process to select SIGSOFT Research Highlights and to increase the participation of SE papers in the Research Highlights section from CACM.

The **Software Engineering Notes** have a new Editor, Dietmar Pfahl, who has modernized the newsletter. SEN is now published on time with more columns than before. The April 2020 issue was the last printed Software Engineering Notes. Going forward the SEN newsletter will be distributed exclusively in electronic form.

**INNOVATIVE PROGRAMS**

To encourage more volunteer participation, SIGSOFT launched several strategic initiatives with an open call for volunteers in 2019. The initiatives included Diversity, and Inclusion; Open Science; Data-driven Introspection; Conference Operations; Paper and Review Quality; and many more. Over the past year the initiatives made significant progress:

* **Conference Operations** (led by Laura Moreno, Alexander Serebrenik): I*mprove the experience for conference attendees.* Initially the team has run a survey to document how different conferences recognize most influential papers. The report is currently being finalized. In addition, they co-organized a session on Diversity and Inclusion at SE Conferences.
* **Data-driven Introspection** (led by Tim Menzies, Bogdan Vasilescu): *Drive the understanding of the entire ecosystem of software engineering conferences.* The initiative is currently working on a SE community survey.
* **Diversity and Inclusion** (led by Jo Atlee, Kelly Blincoe, Byron J. Williams): *Lead the efforts for increasing diversity, inclusion, and belonging*. Drafts have been created for codes of conduct and guidelines for conference EDI, accessible submissions and presentations, inclusive conference activities, inclusive review practices, inclusive session chairing practices. These documents are under review by the community and will be made available shortly. The initiative has also prepared an EDI climate survey, which will be sent to the community soon.
* **Open Science** (led by Jonathan Bell, Daniel Graziotin): *Increase open science practices in the software engineering community. Help the community to increase the accessibility, reproducibility, and replicability of our research outcomes.* The initiative drafted a blueprint for generating open science policies and instructions for reviewers for research venues. The current draft is at: <https://github.com/acmsigsoft/open-science-policies> The initiative also has a working group on artifact evaluation. The latest discussion can be found here <https://github.com/acmsigsoft/artifact-evaluation>
* **Paper and Review Quality** (led by Paul Ralph and Romain Robbes): *Increase the quality of our research papers and reviews, for example by developing guidelines on how to review certain types of papers. Make recommendations on how to improve review processes.* The task force has put together an initial draft of an Empirical Standards and Reviewer Field Manual that will be released soon for comments by the community.

The software engineering community has many community-driven vehicles to promote open science such as dedicated tracks for replications and negative results at conferences, the ROSE festival <https://github.com/researchart/rose>, and pre-registered studies (e.g., MSR 2020, ICSME 2020 in partnership with the Empirical Software Engineering journal).

**BROADENING PARTICIPATION**

Several events or programs were focused on broadened participation either geographically, or among under-represented members of your community and

* The ICSE conferences continued the Student Mentoring Workshop aimed at advanced undergraduates and first/second year graduate students. The goal of the workshop is to attract students to research careers in software engineering, to demystify the graduate school experience, and to offer first-hand perspectives on graduate study from recent Ph.D. graduates, young scholars, and senior researchers.
* Several SIGSOFT software engineering conferences (for example, ASE 2019) have started to appoint Diversity and Inclusion chairs to organize D&I activities at meetings. Improving the diversity and inclusiveness of the community that we serve is and always will be a priority.
* To broaden, reach and membership, SIGSOFT has established national chapters in India (iSoft) and China (cSoft). Each chapter has a liaison on the SIGSOFT EC, in addition to our long-standing International Liaison. The ISSTA 2019 conference was held in China, the ESEM 2019 conference in Brazil, and the ICSE 2020 conference was scheduled to be in South Korea but unfortunately had to be moved to a virtual format. SIGSOFT also supported a summer school in South Africa.

**KEY ISSUES FACING SIGSOFT**

While SIGSOFT is stable and strong, there are several challenges we continue to face.

* Given the uncertainty of the COVID-19 pandemic, it is unknown if and when physical conferences will restart and what format they will have. This makes planning more complicated and adds extra work and anxiety to the conference organizers. SIGSOFT will do its best to support all conferences formats going forward.
* While virtual conferences have largely worked so far, thanks to heroic efforts by the organizers and other volunteers (e.g., Jonathan Bell, Crista Lopes and Benjamin Pierce for the Clowdr tool, <https://www.clowdr.org/>), they come at a cost of missed social connections and a lack of feeling included, especially for newcomers to the SE community. Furthermore, hybrid conferences will only double the work it takes to organize a conference because in addition to a physical format a virtual format has to be supported.
* Despite a large growth of software engineers, SIGSOFT’s membership numbers have not been growing. We will aim to increase membership by providing more benefits to SIGSOFT members, increased visibility of SIGSOFT at conferences, and a focus on practitioners with the help of the industry liaison.
* We continue to work to increase the global reach of SIGSOFT by continuing to establish long-term working relationships with our Indian, Chinese, and South American colleagues, as well as expanding the reach of SIGSOFT into Africa. Over the past few years, China has grown to the second most active country in software engineering research. We will work towards further growing the community and interest in SIGSOFT in these regions.
* Several members of our community have raised concerns over the lack of gold open access offerings at SIGSOFT conferences. This may become a problem for researchers who are subject to the Plan S – Open Access Mandate. We are looking into how the changing open access landscape will affect SIGSOFT and how ACM’s policies, practices, and initiatives can work for SIGSOFT members. To accelerate open access for SIGSOFT conferences we have appointed Arie van Deursen as Open Access Liaison.

**SIGSPATIAL Annual Report**

**July 2019 - June 2020 Submitted by: Shawn Newsam, Chair**

# **SIGSPATIAL CONFERENCES AND WORKSHOPS**

The core mission of SIGSPATIAL is to promote academic and industrial research that addresses issues related to the acquisition, management, and processing of spatial data and knowledge generation, with a focus on conceptual, design, algorithmic, geometric, visual, and systems implementations aspects.

Historically, the scope of SIGSPATIAL initially included geographic information systems (GIS), along with data storage, query processing, indexing and data mining. However, in recent years our scope diversified with interest from a variety of researchers and practitioners whose data sets have spatial information as the key enabling component for their systems, e.g., traffic systems, location-based social networks, ride sharing apps, IoT platforms, etc.

The categories of problems, as well as the plethora of novel solutions, address issues of high societal relevance in various application domains, arising due to the increasing availability of GPS data in ever-increasing number of mobile devices and smart phones. The use of navigation, routing and online mapping systems offered from companies such as ESRI, HERE, Microsoft (Bing Maps) and Google (Google Maps and Google Earth) in settings ranging from tourism, traffic management, emergency/disaster remediation and agriculture only further accentuate the importance of the topics that define the main thrusts of the SIGSPATIAL conference and workshops.

SIGSPATIAL continues to offer an annual conference, focusing on high-quality research papers, along with systems, industrial, and vision papers. It also includes a set of diverse workshops, the numbers of which have been steadily growing (e.g., there were fifteen workshops collocated with the SIGSPATIAL 2019 conference). These are differentiated from other venues in the area by focusing on the computational and system aspects of the field rather than on the available commercial products.

A key aim of the SIGSPATIAL leadership is keeping the flagship conference – the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL) – affordable. This way we believe it can continue to be of good value to its attendees and be competitive not only in quality but also price wise with related conferences. For example, the late registration fees for ACM SIGSPATIAL 2019 were only $500 for ACM members; $550 for non-ACM members; and $400 for students. And, for only an additional $150 more, the community can also attend any of the workshops that are collocated with the conference.

Achieving low fees has been made possible by active solicitation of sponsor contributions and a great deal of vigilance and active involvement of the Organizing Committee, from venue selection to many other logistics of the event. This, in turn, enables a reduced financial burden in terms of contractual obligations when planning the conference. In addition, it also enables a healthy build-up of our financial reserves.

ACM SIGSPATIAL GIS 2019 was the 27*th* event of an annual series of symposia and workshops with the mission to bring together researchers, developers, users, and practitioners carrying out research and development in novel systems based on geo-spatial data and knowledge. 2019 was the 12*th* year that the conference was held under the auspices of the ACM Special Interest Group on Spatial Information – SIGSPATIAL. In 2019, the flagship conference was held in Chicago, Illinois (November 5 - November 8, 2019).

During the one-day workshops and the two-and-a-half-day single track conference, ACM SIGSPATIAL 2019 attracted 397 attendees, with 114 attendees from industry and 283 from academia. We were happy to see that the significant participation growth in SIGSPATIAL 2018 was largely maintained in SGISPATIAL 2019.

Papers were submitted and accepted in different categories. We received a total of 161 research submissions out of which 34 were accepted as full 10-page papers, resulting in an acceptance rate of 21.1%. Further, six industrial experience and systems papers were accepted. The remaining papers in the proceedings correspond to demos and posters, which had 4 pages, and two 4-page vision papers. The latter were once again sponsored by the Computing Community Consortium (CCC) encouraging the submission of papers describing visionary ideas.

Continuing tradition, ACM SIGSPATIAL 2019 had a GISCup programming contest which in 2019 focused on competitive spatio-temporal searching in which mobile agents search for stationary resources on a road network. The competition received 11 submissions and the teams totaled 35 members submitting these formal entries. Four entries were selected as winners and were additionally qualified for an invited paper. The 2019 Cup was sponsored by HERE, IBM, Lyft, and Microsoft. The standard software tool (COMSET) used in the Cup was developed via a collaboration between HERE and TU/e.

For the fourth time since starting it in 2016, the conference held a Student Research Competition (SRC) that aimed at providing a forum for undergraduate and graduate students to share their research results and exchange ideas with other students, judges, and conference attendees. This year, 5 papers authored by graduate students and 1 paper authored by an undergraduate student were selected for presentation during the conference and were further assessed for advancement to the next round of the competition, the ACM Grand Finals.

Our reviewers put in a significant amount of effort in reviewing the papers and our hope is that the reviews were beneficial even to those authors whose papers were not accepted. In 2019, the technical program of the conference was decided in a two-stage process:

1. Each submitted paper was first reviewed by at least three members of a carefully chosen program committee (PC) consisting of experts in the relevant fields. Our PC had a total of 120 invited members from academia and industry, plus an additional 21 members who were designated as the Senior PC. The assignment of papers to reviewers followed a bidding stage, during which PC members could express preferences regarding their willingness to review a particular submission. In addition to three reviewers from the PC, each paper was also assigned a designated Senior PC member who studied the reviews, discussed the merits of the submission with the reviewers, wrote a metareview, and formulated an accept/reject recommendation.
2. Similar to 2018, we implemented a rebuttal phase where the authors received preliminary versions of the reviews and the meta-review, and were offered the opportunity to address the concerns raised therein by submitting a response. The reviews, meta-reviews, and accept/reject recommendations were then finalized, considering the author responses. The selection of papers to include in the conference program was ultimately made by the PC Chairs. Certain papers that were not accepted for the conference, with the permission of the authors, were forwarded to the conference’s Workshop Chairs to be considered for inclusion in relevant workshops co-located with SIGSPATIAL. This is to promote good ideas that are not ready for a conference presentation to be discussed during the workshop sessions which cover a vast array of emerging topics. We also aimed to gain time and optimize our efforts by using the reviews submitted by the PC of the conference at the workshop level.

ACM SIGSPATIAL 2019 had two distinguished speakers: Vinay Shet, (Director of Product Management at Lyft) with the keynote presentation “Unlocking Autonomous Mobility” and David S. Ebert (Silicon Valley Professor of Electrical and Computer Engineering at Purdue University) with the keynote presentation “Visual Spatial Analytics and Trusted Information for Effective Decision Making”.

The 2019 conference was again run as a single track with one of the highlights being the fast-forward poster session where each poster author was given two minutes to present the highlights of their work to the audience and promote their poster. This was followed by a poster and demo reception in the evening where the conference participants had an opportunity to interact with the poster authors. The poster and demo components of the conference proved to be very popular with both the conference audience and the poster and demo authors. We appear to have a good mechanism to match interested researchers to posters directly with the fast-forward session.

Fifteen workshops were colocated with the 2019 conference (an increase from seven over the last ten years).

The 2019 conference was preceded by the following workshops:

1. Computing with Multifaceted Movement Data (MOVE++ 2019)
2. Geo-computational Thinking in Education (GeoEd 2019)
3. Ride-hailing Algorithms, Applications, and Systems (RAAS 2019)
4. Geospatial Data Access and Processing APIs (SpatialAPI 2019)
5. Spatial Gems (SpatialGems 2019)
6. Advances on Resilient and Intelligent Cities (ARIC 2019)
7. GeoSpatial Simulation (GeoSim 2019)
8. AI for Geographic Knowledge Discovery (GeoAI 2019)
9. Analytics for Local Events and News (LENS 2019)
10. Geospatial Humanities (GeoHumanities 2019)
11. Location-Based Recommendations, Geosocial Networks, and Geoadvertising (LocalRec 2019)
12. Prediction of Human Mobility (PredictGIS 2019)
13. The Use of GIS in Emergency Management (EM-GIS 2019)
14. Analytics for Big Geospatial Data (BigSpatial 2019)
15. Computational Transportation Science (IWCTS 2019)

Since 2018, we have held full-day, half-day morning, and half-day afternoon workshops.

With many very generous corporate sponsors, who in 2019 contributed more than $110,000 in sponsorship, we are pleased to be in a secure financial position. The list of sponsors for SIGSPATIAL 2019 included: Apple, Microsoft, HERE and Didi (Platinum Sponsors); Esri (Silver Sponsor); and Oracle, Lyft, and Google (Bronze Sponsors). Many of these sponsors have supported the conference for multiple years. We are also grateful for the publishing sponsorship by Springer Publishers. The National Science Foundation (NSF) was an institutional sponsor enabling travel-grants for students. Additionally, IBM, Here, Lyft and Microsoft provided financial sponsorship for the SIGSPATIAL Cup and the awards for the winners. Finally, two vision papers received awards sponsored by Computing Community Consortium (CCC).

# **SIGSPATIAL PUBLICATIONS**

The first issue of ACM Transactions on Spatial Algorithms and Systems (ACM TSAS) appeared in August 2015. Since then, it has appeared quarterly, with the latest issue in August 2020. The Editorial Board of ACM TSAS includes Walid Aref (Purdue University) as the Editor-in-Chief, three Senior Associate Editors: Ralf Hartmut Guting (University of Hagen, Germany), Dinesh Manocha (University of Maryland College Part, USA), and David Mount (University of Maryland College Park, USA) as well as 24 Associate Editors.

We have initiated efforts in the last year for TSAS to be considered by numerous indices. It is now indexed by Emerging Sources Citation Index. In addition, ACM SIGSPATIAL is being pursued by our members for inclusion into numerous international conference rankings. To create synergy between TSAS and SIGSPATIAL, we have added special issues to the publication schedule which include inviting best paper award nominees from the previous year’s SIGSPATIAL conference to submit extended versions to the journal. Two other special issues on emerging topics has been published. The first special issue is on Urban Mobility: Algorithms and Systems (Volume 5 Number 2, August 2019, Guest Editor: Sreenivas Gollapudi - Google USA) and the second on Deep Learning for Spatial Algorithms and Systems (Volume 6 Number 3, May 2020, Guest Editors: Moustafa Youssef - Alexandria University Egypt, John Krum - Microsoft Research USA, and Muhammad Aamir Cheema - Monash University Australia). Currently, a Special Issue on the subject of Contact Tracing is ongoing with a 2021 expected publication date.

We are striving to increase the visibility of ACM TSAS and to get a steady stream of submissions to the journal. We have managed to double the number of papers published per issue from around 3 papers per issue in 2018 to around 6 papers per issue in 2020 due to the increase in the number of quality papers being submitted.

We continued to maintain the SIGSPATIAL Special Newsletter, with Andreas Zuefle (George Mason University, USA) as the editor. This newsletter has three issues per year (March, July, and November). The November 2019 issue covered event reports including reports of SIGSPATIAL satellite workshops and the finalists of the ACM SIGSPATIAL student research competition who represent SIGSPATIAL in the ACM finals. Both the March 2020 and July 2020 issues had special topics on “Modeling and Understanding the Spread of COVID-19” to bring together researchers in the ACM SIGSPATIAL community working on this important topic. For the first time, newsletter articles appearing in these issues will be presented at the SIGSPATIAL 2020 conference in a dedicated workshop to include epidemiologists to connect needs in this field with the expertise of our community.

# **AWARDS**

We now have two prominent and well-recognized awards in our portfolio: 10-Year Impact Award and Best Paper Award.

*10-Year Impact Award*: This annual award is given to a regular paper published at our main conference 10 years ago whose value and prescience have become apparent over a long period of time. It is chosen by a committee from our research community. In 2019, the award was given to the following paper from the 2009 conference:

“Map-Matching for Low-Sampling-Rate GPS Trajectories” by:

* Yin Lou (Microsoft Research Asia, Beijing, China)
* Chengyang Zhang (Microsoft Research Asia, Beijing, China)
* Yu Zheng (Microsoft Research Asia, Beijing, China)
* Xing Xie (Microsoft Research Asia, Beijing, China)
* Wei Wang (Fudan University, Shanghai, China)
* Yan Huang (University of North Texas, Denton, Texas, USA)

*Best Paper Award*: This annual award is given to one of the full papers of the main conference that demonstrates a significant new research finding in the areas related to SIGSPATIAL. The winner of this award for 2019 was:

“Maximum Physically Consistent Trajectories” by:

* Bram Custers (Eindhoven University of Technology, Netherlands)
* Mees van de Kerkhof (Utrecht University, Netherlands)
* Wouter Meulemans (Eindhoven University of Technology, Netherlands)
* Bettina Speckmann (Eindhoven University of Technology, Netherlands)
* Frank Staals (Utrecht University, Netherlands)

# **OTHER SIGNIFICANT CONTRIBUTIONS**

In addition to the best paper, we nominated one paper from the 2019 conference to the CACM Research Highlights. Nominated papers make significant contributions to the discipline that we feel should be heard by the wider community.

The nominated paper from the 2019 conference was, “Multi-Itinerary Optimization as Cloud Service” by Alexandru Cristian (Microsoft), Luke Marshall (Microsoft), Mihai Negrea (Microsoft), Flavius Stoichescu (Microsoft), Peiwei Cao (Microsoft), and Ishai Menache (Microsoft). This paper describes a solution to the NP-hard “technician routing and scheduling problem” (TRSP), which is like the “traveling salesman problem”, but with more constraints. From the paper, the goal is:

… to schedule a set of agents to visit a set of waypoints, where each waypoint is visited at most once. When visiting a waypoint, the agent must dwell at its location (e.g., perform a service) within the time-window associated with the waypoint. In particular, the service must start within the time-window. Agents may arrive earlier, but they must wait until the start of the time-window before they can begin their service. Our objective is to visit as many waypoints as possible, while minimizing the total travel time of the agents.

The solution presented considers predicted traffic delays. This is not only an important algorithmic challenge, but a deployment challenge as well. The authors work in Microsoft Bing Maps. The paper solves a difficult problem, considering realistic factors like traffic, and presents a solution that is proven scalable as a deployed production service. The paper is rare in that it begins with a theoretical problem and concludes with a solution that is commercially available as a public API that makes an effective tradeoff between accuracy and performance.

# **ACM DIGITAL LIBRARY**

SIGSPATIAL continues to expand its presence in the ACM Digital Library by soliciting workshop proposals both in its role as a sponsor and on an in-cooperation status. This can be seen by the fifteen workshops that it sponsored in 2019, which is an increase from the thirteen in 2018 and an increase from seven in ten years.

# **SIGSPATIAL CHAPTERS**

SIGSPATIAL has one chapter: SIGSPATIAL Australia. A noteworthy achievement of the SIGSPATIAL Australia chapter is that, thanks to their efforts, ACM SIGSPATIAL is now in the category of rank-A conferences in Australia.

# **OFFICERS**

The Executive Committee (EC) consists of elected officers for a three-year term. The EC team from July 1, 2017 through June 30, 2020 consisted of:

* Chair: Cyrus Shahabi, University of Southern California, USA
* Vice-Chair: Goce Trajcevski, Iowa State University, USA
* Secretary: Egemen Tanin, University of Melbourne, Australia
* Treasurer: John Krumm, Microsoft Research, USA

According to the SIGSPATIAL bylaws, the past SIGSPATIAL EC chair, Mohamed Mokbel, is also a member of the EC. The two additional non-voting members of the EC were: Newsletter Editor: Andrea Zufle, George Mason University, USA; and Webmaster: Chrysovalantis Anastasiou, University of Southern California, USA.

# **ACHIEVEMENTS AND INITIATIVES**

SIGSPATIAL continues its dedicated work towards fulfilling its mission of maintaining high quality research conferences and workshops and is actively seeking more sponsors and creating activities to make it more attractive for the potential sponsors as well as the community at large.

We have shifted over to planning our conference two years in advance which has helped with logistics, particularly securing meeting space. We are initiating planning for our 2022 conference.

We had decided that we would move the conference outside the USA for the first time by holding it in Beijing, China in November 2020. Logistics were well in place by the beginning of 2020. However, the early spread of the COVD-19 pandemic in China made us reorganize to hold the conference in the Seattle, Washington region. Again, logistics were in place when the worldwide spread of COVID-19 made us decide in late July to move the conference completely online. We are now studying best practices for virtual conferences.

Our current plan is to hold the 2021 SIGSPATIAL conference in Beijing. We feel this is a good opportunity to promote SIGSPATIAL in Asia further and apply for ACM SIGSPATIAL to be ranked among top-tier conferences by the China CCF ranking.

Future initiatives that we are considering for second part of 2020 and beyond are (some of these initiatives have been carried forward one year as the COVD-19 pandemic prevented us from getting to them:

1. A key issue we would like to continue addressing in the next 2-3 years is increasing student participation to the conference. Although we have seen a significant increase in industry participation recently, we aim to repeat this success on the student participation front as well. Ideas being discussed on this front include, but not limited to, increasing recruitment related activities targeted to students during the ACM SIGSPATIAL conference. We are planning to build on the company recruiting events we had in recent years, which were very successful and appreciated by the audience.
2. Another issue we would like to address is improving the quality of the presentations at the conference, especially for the research papers. The quality of the presentations varies quite a bit at currently. We would like to try different initiatives with methods such as mentoring for junior presenters, as well as varying presentation durations based on the associated paper reviews and draft presentation submissions.
3. We are also considering the addition of a new session, starting with the 2021 conference, called “practitioner session” to broaden participation. In particular, we plan to target Geographers by using one of our Industry Sponsor’s network, ESRI, to reach out to geographers and ask them for submissions of 1-page abstracts (which is the norm in their community for attending conferences). We plan to accept a dozen of these abstracts and provide 5-8 minutes presentation timeslots for each submission at the practitioner session. If successful, we will broaden this idea to other fields. Groundwork for this will be done during the 2020 conference.

**SIGUCCS Annual Report**

**July 1, 2019 - June 30, 2020**

**Submitted by: Laurie Fox, Chair**

*SIGUCCS' mission is to foster the professional development of practitioners involved in the support, delivery, management, and leadership of information technology services in higher education. This is pursued through providing forums for interaction and sharing knowledge and experiences, professional development opportunities, and recognition for leaders who contribute to the field.*

### Awards

######  Penny Crane Award for Distinguished Service

The Penny Crane Award for Distinguished Service was first awarded in 2000 and recognizes an individual’s significant and/or multiple contributions to SIGUCCS, the IT profession, and higher education over an extended period. The 2019 recipient was **Kelly Wainwright**.

######  SIGUCCS Hall of Fame

The Hall of Fame awards were first awarded in 2000. They recognize nominated individuals who have contributed their time and energies to benefit SIGUCCS. No Hall of Fame awards were conferred in 2019.

###### Communication Awards

The Communication Awards are an annual competition where the winners are invited to participate in the annual conference as poster presenters. A full description of categories can be found at <http://siguccs.hosting.acm.org/wp/?page_id=406>

* Category 1 – Computing Services Public / Mobile Website
	+ Best of Category: Texas A&M University – Division of Information Technology, Aggie LIFE – 2018 Cybersecurity Campaign
* Category 2 – Computing Newsletter
	+ Best of Category: New York University, Connect: Your Source for IT News at NYU
* Category 3 – How-To Guides (Print or Electronic)
	+ Best of Category: Texas A&M University – Division of Information Technology, 2019 Summer New Student Conference Brochure
	+ Award of Excellence: UAB (University of Alabama at Birmingham), Don’t Get Hooked – Phishing
* Category 4a – Instructional Materials (for Classroom or Online Instruction)
	+ Indiana University, Audition: The Basics
* Category 4b – Quick Reference Guides
	+ Best of Category: UAB (University of Alabama at Birmingham), VoIP Brochure
* Category 5a – General Service Promotional Materials
	+ Best of Category: Texas A&M University – Division of Information Technology, Aggie LIFE – 2018 Cybersecurity Campaign
* Category 5b – General Services Campaign
	+ Best of Category: Indiana University, Think Before You Click
	+ Award of Excellence: UAB (University of Alabama at Birmingham), VoIP Project
* Category 6a – Short Promotional Video
	+ Best of Category: Indiana University, NameCoach at IU
	Award of Excellence: NC State University, Phishing and 2FA at NC State
* Category 6b- Long Promotional Video
	+ Best of Category: Golf Cart Pedagogy – Episode 1 – “Here Be Dragons”
* Category 7 – Use of Social Media
	+ Best of Category: Texas A&M University – Division of Information Technology Social Media Presence
* Category 8 – Student Created Materials
	+ Best of Category: Lewis & Clark College, Data Security Tips

### Proceedings

There were 63 panels, posters, presentations, and papers presented at the annual conference and submitted in the proceedings of the 2019 ACM Annual Conference on SIGUCCS. Significant topics included: Communications, Training, and Documentation, Infrastructure, Security, and Operations, Instructional Technology and Design, Leadership and Professional Development, and Service Desk and Service Management. The full proceedings in the ACM Digital Library can be found at: <https://dl.acm.org/doi/proceedings/10.1145/3347709>

### Programs

######  Mentoring Program

The Mentoring Program kicked off its 8th annual cohort in December 2019. SIGUCCS is committed to developing IT Service and Support professionals. We started the mentoring program in 2012 to pair service professionals together for 1 year to learn and grow. An advisory team administers the program and provides support for mentor pairs. We pair professionals with individuals who work at similar institutions in similar jobs or who have similar development interests. The expectation is that mentors and mentees communicate once a month about professional development topics. This program runs from January through October.

There are 47 participants this year. At the end of the program, mentors and mentees celebrate at a networking event during the annual conference.

######  Pre-Conference Seminars

Pre-conference seminars provide an opportunity to explore topics in-depth and learn and share with colleagues around the world. At SIGUCCS 2019, we offered four seminars. Notably, this is the first time we have been able to offer all four seminars, with sufficient registrations, in several years. This is largely because we have shifted away from cost recovery attempts on seminars in the past few years (with a dramatic reduction in registration costs), and therefore facilitators can decide on their own if they have enough registrants for their needs or not.

The 43 total registrations represent roughly 21% of the total registrations of the conference. We have hovered between 20-25% over the past 2 years.

* Communication Styles in the Workplace: An Introduction to the DISC Model (Laurie Fox and Shawn Plummer) – 7 attendees
* Re-Thinking IT: Strategic Decision Making to Improve Efficiency (Brian Fodrey) – 9 attendees
* Creating Breakthrough Communication and Collaboration Across Individuals, Teams, and Organizations (Stacy Johnson and Jonathan Hardy) – 14 attendees
* Considerations and Tactics in Building Executive Presence (Dianna Sadlouskos) – 13 attendees

######  Webinars

SIGUCCS offered eight webinars on a variety of topics. These webinars are available to the public as an opportunity to share information about SIGUCCS. Popular or timely topics from the conference are selected as topics for webinars. Past webinars are available on our web page, and we have content dating back to 2010.

The SIGUCCS Marketing Committee also created a brief presentation for the start of each webinar that introduces SIGUCCS and shares announcements about the annual conference, awards programs, and other SIG activities. Each webinar is recorded and made available on our YouTube Channel. (<https://www.youtube.com/user/SIGUCCSVideos>)

* Cook ‘em like Gumbo: Support Documents for Today and Tomorrow
* Solve and Evolve: Practical Applications for Knowledge Centered Service
* Teaching an Old Yellow Jacket New Tricks: Change management at Georgia Tech
* Digital Transformation from Day One: Onboarding New Employees
* SIGUCCS 2019 Conference Newcomers Webinar
* Conference Confidence: Little tips for big impact in your presentation
* Can you Teach Customer Service?
* How to Create an Effective Poster (2019)

###### Book Club

A handful of active SIGUCCS members started to read together a new book each month. Participation has ranged from 4-12 people each month, and the books are discussed in Slack and in and online hangout. The book club is open to anyone, and we are hoping to encourage more people from the community to participate. Books read in 2019-2020 were:

* SuperBetter: the power of living gamefully Jane McGonigal
* The Monsters of Educational Technology Audrey Watters (SIGUCCS 2019 Keynote Speaker)
* Turn the Ship Around!: A True Story of Turning Followers into Leaders L. David Marquet
* Crucial Conversations Kerry Patterson
* 168 Hours: You have more time than you think Laura Vanderkam
* Radical Candor Kim Scott
* The Subtle Art of Not Giving a F\*ck Mark Manson
* The Five Dysfunctions of a Team Patrick Lencioni

### Broadening Participation

######  Conference Attendance Grants

The purpose of the SIGUCCS Conference Attendance Grant program is to provide partial support for individuals in institutions of higher education to participate in the annual SIGUCCS Conference. This support is funded by SIGUCCS and consists of a full registration to the Annual Conference; hotel room accommodations; and registration for one half-day pre-conference seminar. The Fall 2019 recipients were: **Lisa Terrier**, Middlebury College**, Joshua Savoy**, UW-Platteville, and **Steven Thompson**, Arizona State University.

###### Communication Efforts and Online Communities

The Marketing Committee coordinates our communication schedule to ensure that we send a message to the community every weekday. The messages come from a variety of Committees: the Executive Committee, our annual conference, marketing, awards selection, and professional development. We focus on two primary communications channels: the SIGUCCS-L email list and Facebook. We also do some minor communications on Twitter through automatic announcements of our newsletter articles and conference content announcements and monthly recaps on LinkedIn.

###### SIGUCCS Webinars YouTube Channel

We have continued to upload our monthly webinars to YouTube and organize them into a playlist. We also let the community know when the video is available.

###### Slack

SIGUCCS is utilizing Slack to facilitate communications among SIGUCCS colleagues. Our SIGUCCS Slack domain is: siguccs.slack.com There are several channels established in our domain – #general, #conference, #productivity, and #academictechnology. A group of SIGUCCS colleagues also participate in a monthly #book-club chat, and one of our members posts a question in the #weeklychallenge channel.

### Key Issues in the next 2-3 years

###### Anticipated Travel Restrictions

By the end of April, we had decided to postpone our November 2020 conference to March 2021. While it aligns with our goal of holding future conferences in spring months, we anticipate a drastic decline in attendance because of the current COVID travel guidelines and anticipated financial restrictions at colleges and universities.

###### Engaging Our Community outside of the Conference

Outreach and increasing our community continue to be priorities for SIGUCCS. We are continuing to focus on frequent communication about our activities and offering compelling webinars. We also hope to expand our online communities to assist in finding conference and leadership volunteers.

**SIGWEB Annual Report**

**July 2019 - June 2020**

**Submitted by: Peter Brusilovsky, Chair**

# Mission Statement

SIGWEB, the ACM Special Interest Group on Hypertext and the Web, is a community of scholars, researchers, and professionals who study and use the concepts and technologies of linked information that were originally conceived as hypertext and are most famously realized on the Web. The SIGWEB community’s interests range widely and include hypertext in all its forms, social networks, knowledge management, document engineering, digital libraries, and the Web as both an information tool and a social force. SIGWEB encourages innovative research, open discussion of new ideas and the development of methodologies and standards through conferences and a variety of communication resources for its members and the world.

# Recent Highlights

In 2019, SIGWEB celebrated 30 years of its flagship series, Hypertext at Hypertext 2019. This event was held in Hof, Germany, close to the border between former East and West Germany and coincide with the 30th anniversary of the fall of the Berlin Wall. Correspondingly, the slogan of the conference was “hypertext - tear down the wall”. A highlight of the conference was the keynote of the Andries van Dam, one of the pioneers of Hypertext field and a prominent academic <https://human.iisys.de/ht2019/program/vandam-keynote/>

The Spring 2020 meeting of SIGWEB executive committee extensively discussed the challenges of conference organization in COVID context, but also pointed to the opportunities for broader engagement of students and researchers from underrepresented regions at SIGWEB conferences. Following a discussion with Hypertext 2020 and UMAP 2020 organizers, SIGWEB announced Hypertext Fair Access Initiative (<https://www.sigweb.org/conferences/upcoming/32-hypertext-2020-fair-access-initiative>) that has been followed by a similar initiative at UMAP 2020 also sponsored by SIGWEB. These opportunities were used by several researchers from the target regions. Since both conferences took place in July 2020, more details will be presented in the next year report. SIGWEB expects to continue this practice in the following years.

# SIGWEB Awards

At ACM Hypertext 2019, the following two named awards were presented:

* *Douglas Engelbart Best Paper Award*: Jacob Wobbrock, Anya Hsu, Marijn Burger and Michael Magee. Isolating the Effects of Web Page Visual Appearance on the Perceived Credibility of Online News among College Students.
* *Ted Nelson Newcomer Award:* Isaac Alpizar-Chacon and Sergey Sosnovsky. Expanding the Web of Knowledge: one Textbook at a Time.

At the jointly sponsored ACM SIGWEB/SIGIR JCDL 2019 conference, the following named award was presented:

* *Vannevar Bush Best Paper Award*: Drahomira Herrmannova, Nancy Pontika and Dr. Petr Knoth. Do Authors Deposit on Time? Tracking Open Access Policy Compliance.

At ACM DocEng 2019, the following SIGWEB-supported award was presented:

* *Best paper award*: Matthias Miller, Alexandra Bonnici and Mennatallah El-Assady. Augmenting Music Sheets with Harmonic Fingerprints.

# SIGWEB Conferences

SIGWEB continues to offer its members a compelling series of conferences that are supported in whole or in part by the SIG. Each of these conferences have a loyal following and are able to provide compelling scientific content. SIGWEB has a nice balance of small and large events, meeting the needs of young and established researchers. Some of our conferences are mature, others are working to find a longer-term identity. Most important change within the report period was the transition of a highly respected The Web Conference (formerly WWW) to SIGWEB sponsorship. This is a natural, but important “acquisition” for SIGWEB with its focus on Web and Social Media and a valuable new conference for the whole ACM portfolio. We are thankful for the former SIGWEB chair Dick Bulterman for his for on bringing in this conference

# Volunteer Involvement

SIGWEB realizes that involving volunteers in SIG activities is a non-trivial task. Many of our members have been with the community for many years and have become accustomed to operating within a ‘well-oiled’ environment. At the SIG business meetings held at each of our fully supported conferences, motivating our membership to take leadership roles is both an opportunity and a challenge.

The primary road that we offer for volunteer involvement is through the organization of our conferences and symposia. For Hypertext and DocEng (two of our three 100% supported conferences), strong mechanisms are in place to help ensure long-term viability, moreover, SIGWEB directly helps these series. This year SIGWEB initiated a major update of Hypertext steering committee bringing new active members. For Web Science, which is supported for 100% by SIGWEB but managed together with the Web Science Trust, SIGWEB helps with long-term planning and organization. SIGWEB also actively participate inWe expect that the Web conference managed together with its own committee, the nature of cooperation will be similar. Our co-sponsored conferences (CIKM, JCDL, WISDM) are mature conference support structures are in place, in cooperation with SIGIR, SIGCHI and IEEE.

In terms of participation at events, regularly provide funding for student (and possibly senior) travel. SIGWEB directly contributes to the student travel programs for our 100% supported conferences (Hypertext, DocEng, Web Science) and UMAP conference co-sponsored with SIGCHI. We require all our events to offer reduced registration for members and extra discounts for students and retirees. Note that these statements reflect the situation within the reporting period and before, the approach to support attendees in need was different for our conferences in July and August 2020 and might remain different until the change of the COVID-19 situation. In addition, we were not enforcing the discounted registration rule for virtual conferences with already low registration rates.

To keep stronger ties with our conference series, SIGWEB instituted the mechanism of conference liaison. For each of our sponsored or co-sponsored conference series, we worked with its steering committee or similar body to nominate one representative, usually a member of the series SC to serve as the series liaison. The liaisons join SIGWEB officers and members at large to form SIGWEB Executive committee. Within the reporting period, SIGWEB considerably updated its Executive committee ensuring participation of active and well-informed members. Last EC meeting (hold virtually) was important to coordinate and plan conference organization in COVID-19 context.

The elected volunteer leaders of the SIG at the end of FY 2019 were:

* Chair: Peter Brusilovsky
* Vice-Chair: Eelco Herder
* Secretary/Treasurer: Milena Dobreva

The appointed SIGWEB Executive Committee has the following members:

* [Dick Bulterman](https://www.sigweb.org/about-sigweb/executive-committee/23-dick-bulterman)Past Chair (2015-2019)
* [April Mosqus](https://www.sigweb.org/about-sigweb/executive-committee/4-april-mosqus)ACM Program Coordinator
* [Charlie Hargood](https://www.sigweb.org/about-sigweb/executive-committee/7-charlie-hargood)Information Director
* [Ethan Munson](https://www.sigweb.org/about-sigweb/executive-committee/18-ethan-v-munson)DocEng Liaison
* [Claus Atzenbeck](https://www.sigweb.org/about-sigweb/executive-committee/21-claus-atzenbeck)Hypertext Liaison
* [Cathy Marshall](https://www.sigweb.org/about-sigweb/executive-committee/22-cathy-marshall)JCDL Liaison
* [Charles Nicholas](https://www.sigweb.org/about-sigweb/executive-committee/26-charles-nicholas)CIKM Liaison
* [Maria Bielikova](https://www.sigweb.org/about-sigweb/executive-committee/29-maria-bielikova)UMAP Liaison
* [David Millard](https://www.sigweb.org/about-sigweb/executive-committee/30-david-millard)Web Science Liaison
* [Mounia Lalmas](https://www.sigweb.org/about-sigweb/executive-committee/31-mounia-lalmas)WSDM Liaison
* [Jessica Rubart](https://www.sigweb.org/about-sigweb/executive-committee/6-jessica-rubart)Member at Large

Additional volunteers working with the SIG are:

* [Martin Vesely](https://www.sigweb.org/about-sigweb/executive-committee/5-martin-vesely)Newsletter Editor
* [Daniel Roßner](https://www.sigweb.org/about-sigweb/executive-committee/32-daniel-rossner)Webmaster
* Benham Rahdari Social Media coordinator

# Membership

Every year SIGWEB holds Town Halls at two of its 100% sponsored conferences that are managed directly by SIGWeb – Hypertext and DocEng. The goal of these sessions is introducing both SIGWEB and ACM to conference participants and to engage in a discussion on what the SIG (and what ACM) can do to help advance the state of the art within our interest domain, as well as to advance the careers of our members. In 2019, the Chair Peter Brusilovsky hold the Town Hall at ACM DocEng and Vice Chair Eelco Herder hold the Town Hall at ACM Hypertext.

A recurring issue of our meetings with the conference attendees and members is the value of membership. We have about 6 times more event participants than registered members. As with other SIGs, however, the advantages of SIG membership are not well understood by many conference participants: the Web and social media are assisting them in establishing a feeling of community better than the SIGs can; the financial advantages of SIG membership are not directly felt by participants (for whom conference registration is covered by grants and is only a small portion to the full travel expense of coming to a scientific meeting); the advantages of ACM DL access typically are not considered as special (since their host institutions nearly always already offer library-based institutional subscriptions).

One of the constant challenges for SIGWEB (and ACM) is to design a total benefits package that makes a compelling personal offer for new membership. This package should include sufficient financial and scientific incentives (such as having advance registration discounts only available to existing SIG members, plus unlocking special features of the DL that are available to members on top of any benefits from existing [institutional] subscriptions), and it should provide incentives for continued long-term membership (such as access to funds to support local events or perhaps scaled discounts to SIG conferences).

We realize that these concerns are not unique to SIGWEB and look forward to actively coordinating our efforts with other SIGs. The actions that we took on our side in the reporting period is a “trial membership”. We decided to re-introduce the approach used by SIGWEB a few years ago: offer free membership to all registered attendees of our “flagship” events – Hypertext and DocEng. This has been done for both Hypertext 2019 and DocEng 2019. We hope that access to Hypertext Bulleting and mailing lists could create a feeling of belonging that could be extended for years beyond the trial.

# Chapters

SIG chapters are an important mechanism to engage members of a specific geographic community and engage new volunteers. In the past, SIGWEB has no chapters, but in the reporting period we debuted our first chapter in China, an important region with rapidly increasing interest to the Web, social media, and other SIGWEB core topics. The experience of this first chapter will help us in planning similar actions in other currently underrepresented regions such as Latin America and Central Asia

# Publicity and Social Media

Within the reporting period, SIGWEB officers invested a considerable amount of time to revive and improve SIGWEB reach to members and broader community through publicity channels and social Media. While SIGWEB has many channels for broader reach, some of them needed an update and some demanded more active use.

The SIGWEB website has been completely rebuilt, ensuring that the site is accessible via a wide range of devices. Outdated content has been removed and instead more focus is given to announcements and references to our conferences and the respective communities. Charlie Hargood, our Information Officer, and with our new webmaster, Daniel Roßner, actively follow and engage with the communities for this purpose. Furthermore, to ensure visibility of the conferences, an inventory has been made on the consistency of web addresses and social media accounts used. SIGWEB outreach on Twitter and Facebook has significantly been increased, among others by following the conferences’ social media accounts and sharing relevant announcements.

Due to the increased importance of LinkedIn as a social media platform for professionals, we also restructured and revived our presence at LinkedIn, which is currently managed through LinkedIn groups. We consolidated our LinkedIn presence for Hypertext and UMAP series, which was spread overt multiple annual conference groups, each with 20-300 members. These groups were formally closed, and their members were redirected to a single group for each series. We also re-vitalized SIGWEB central group. To maintain our presents in all these social media channels we recruited a dedicated social media coordinator, Behnam Rahnadri.

# Closing Comments

Financially, SIGWEB is in an excellent position to develop and experiment with new initiatives to help promote a vibrant scientific community within our domain. We have excellent conferences; we have existing partnerships with other SIGs and we have an extensive network of in-coop conferences that help ensure future viability. At the same time, we recognize the challenges of running a volunteer organization in an age of soloists.

SGWEB organizes a wide range of events. Our 100% events have been stable for many years. ACM Hypertext – SIGWEB’ long-time flagship conference – just celebrated its 30th anniversary in September 2019 and ACM DocEng will celebrate its 20th anniversary in September 2020. ACM WebScience hosted its 10th edition in July 2019 and UMAP hosted its 28th conference in July 2020. While all of these events have a dedicated following, it is always healthy to evaluate the future impact that these events will have in the already crowded spectrum of computer science conferences supported by ACM. We are excited to bring in The Web Conference to the SIGWEB portfolio this year. SIGWEB is also active in working with several other conference series “in cooperation” format. We are now attempting to better reach broader community, especially in underserved regions, to engage new members and new conference attendees. I see this as the main challenge for SIGWEB’s current board.

**SIGecom Annual Report**

**July 2019 – June 2020**

**Submitted by: Nicole Immorlica, Chair**

SIGecom serves as a bridge between theoretical research on economic systems (conducted by those in the fields of economics and operations research as well as computer science) and the application of such ideas in industry and elsewhere. As this report details, we are very successfully carrying out this mission: we attract top researchers and publications on topics that span theory and practice (with a relative emphasis on the former) and maintain close relationships with—and ongoing conference sponsorship from—some of the most significant companies in our sector (notably Microsoft, Facebook, Uber, Lyft, Google). However, maintaining this position requires a careful balancing act, ensuring that we continue to accommodate the viewpoints, research methodologies, and publication practices of different communities.

SIGecom's four primary activities are convening the annual *Conference on Economics and Computation* (EC); adjudicating paper, dissertation and test-of-time awards which are announced at this conference; producing the electronic newsletter *SIGecom Exchanges*; and running the journal *ACM Transactions on Economics and Computation* (*TEAC*).

The 21st ACM Conference on Electronic Commerce (EC'20) was held in virtual format from July 13-16, 2020, with accompanying events in the surrounding weeks. The program chairs were Michael Ostrovsky (Stanford University) and Ariel Procaccia (CMU); the general chair was Péter Biró (Hungarian Academy of Sciences). When it became clear that the conference would be virtual, we additionally recruited Jason Hartline (Northwestern University) as virtual general chair and Yannai Gonczarowski (Microsoft Research) as virtual local chair. We continue to grow year on year; we received 491 technical paper submissions (up 29% from last year). Due to the broad accessibility afforded by the virtual format, 1044 researchers registered for the virtual conference (up 81% from last year), and the virtual platform received 730 unique logins.

The SIG gave three paper awards at the 2020 conference. First, we awarded the Test of Time Award to the pair of papers:

* Dean Foster and Rakesh Vohra, *Calibrated learning and correlated equilibrium*, Games and Economic Behavior, 1997 and
* Sergiu Hart and Andreu Mas-Colell, *A simple adaptive procedure leading to correlated equilibrium*, Econometrica, 2000

for foundational work on games played by learning agent --, an important research direction that continues to inspire researchers to this day. Second, we awarded the Doctoral Dissertation Award to:

* Hongyao Ma, *Mechanism Design for Coordinating Behavior*, Harvard, 2019

for an impressive combination of theory and practice for complex mechanism design settings -- it identifies key problems, develops sophisticated mathematical models to tackle them and ultimately influences the practice in the industry via direct collaborations. Honorable mentions were Rediet Abebe (Cornell) and Eric Balkanski (Harvard). Third, we recognized two best papers at the conference. The Best Paper award went to

* Itai Arieli, Yakov Babichenko, Fedor Sandomirskiy, and Omer Tamuz, *Feasible Joint Posterior Beliefs*

and the Best Paper with a Student Lead Author Award went to

* Bhaskar Ray Chaudhury, Jugal Garg, and Kurt Mehlhorn, *EFX Exists for Three Agents*.

The conference also recognized “exemplary” papers in each of the conference’s four tracks (although these were not official SIG awards). The awarded papers were:

* Bhaskar Ray Chaudhury, Jugal Garg, and Kurt Mehlhorn, *EFX Exists for Three Agents* (Exemplary Theory Paper; also given the Best Paper with a Student Lead Author Award);
* Andre Stenzel, Christoph Wolf, and Peter Schmidt, *Pricing for the Stars: Dynamic Pricing in the Presence of Rating Systems* (Exemplary Applied Modeling Track Paper);
* Uttara Ananthakrishnan, Davide Proserpio, and Siddartha Sharma, *Does Quality Improve with Customer Voice? Evidence from the Hotel Industry* (Exemplary Empirics Track Paper);
* Neil Newman, Kevin Leyton-Brown, Paul Milgrom, and Ilya Segal, *Incentive Auction Design Alternatives: A Simulation Study* (Exemplary Artificial Intelligence and Computation Track Paper).

The *TEAC* journal is doing well. It continues to run by-invitation special issues of the most recent EC conferences and also draws papers similarly from the WINE conference. It has two editors (one from computer science and one from economics): David Pennock (CS; Microsoft Research) and Ilya Segal (Econ; Stanford University). They aim to continue growing the journal and cementing it as a preferred destination for work in our field.

Our *Exchanges* newsletter continues to publish two issues annually. The current editors are Inbal Talgam Cohen (Technion) and Matthew Weinberg (Princeton). In a long-standing effort to improve the EC academic job market, *Exchanges* again collected and published bios of all job market candidates.

SIGecom’s volunteer development is extremely strong. Many dozens of people serve across a wide range of roles: in the conference organization committee; organizing committees for our various workshops; tutorial presenters; workshop panelists; *TEAC* editors-in-chief and associate editors; SIGecom Exchanges editors; SIG executive; three best paper award committees; a wide variety of ad hoc committees and special-topic volunteer roles. We are extremely conscious of diversity—particularly, but not limited to, diversity across research areas, gender, and countries of origin—and have been very successful in ensuring that our volunteer leaders are diverse, reflective of the community at large, and top-caliber researchers without exception. We additionally have recently appointed a Diversity and Inclusion Chair, Rediet Abebe (UC Berkeley) to help coordinate our D&I efforts.

In 2020, we ran a robust initiative on Global Challenges in Economics & Computation (GCEC). In the first part of the initiative, with financial support ($150k) from Facebook, we ran a call for proposals to support investigation into important theoretical problems and new research applications for economics and computation. The grants initiative was run by Eric Sodomka (Facebook Research), Katrina Ligett (Hebrew University/SIGecom Treasurer), and Katie Bernhard (United Nations Development Programme). Projects were required to address at least one of the UN's sustainable development goals, and main PIs were required to be researchers who have lived in or currently reside in a LMIC. The submission process provided support for new researchers to find collaborators, and strong mentorship from volunteer members of the SIG community. The list of grant winners appears here: <https://www.gcec.org/winners>

The second component of the GCEC initiative was a GCEC workshop, co-located with EC 2020, co-organized by Eric Sodomka (Facebook Research), Dina Machuve (Data Science Africa; Nelson Mandela African Institution of Science and Technology), Olubayo Adekanmbi (Data Science Nigeria; MTN Nigeria), Katie Bernhard (United Nations Development Programme Uganda), Katrina Ligett (SIGecom Treasurer; Hebrew University), and Kevin Leyton-Brown (University of British Columbia).

The GCEC initiatives also drew in new participants to the EC conference itself, through a Global Outreach Mentor-Mentee program co-run by Eric Sodomka (Facebook Research) and Rediet Abebe (Harvard University). The program matched EC attendees from low- and middle-income countries (LIMC) who are relatively new to the EC community with EC community members to read papers together and attend talks together. This mentoring program was in addition to an EC mentoring workshop for junior researchers, and to informal mentoring opportunities provided by conference social and technical events.

We continued several new initiatives that were initiated last year:

* We transitioned to double-blind reviewing from single-blind, and continue to monitor the effects of this change. Our hope is that this will lead to a fairer review process and help to increase the diversity of the conference.
* For the fourth year running, we video-recorded all technical talks and tutorials, with the SIG covering the costs. Leveraging the availability of these videos, we continued a new award: Best Presentation by a Student/Postdoc. This award is adjudicated after the conference by a committee that watches the videos after the fact, based on nominations from session chairs.
* Recognizing that our SIG finances are healthy enough to permit us to take on new expenditures, we continued a mechanism for funding new special initiatives outside our usual operations, adjudicated by the workshop and tutorial chairs and approved by the SIG executive. This year we funded internet bandwidth scholarships to facilitate participation in the virtual conference from low-and-middle income communities.
* We instituted an ACM EC Code of Conduct, which registrants were required to confirm that they accepted during the registration process. We also implemented the Safe Theory of Computing guidelines (SafeTOC).
* We held an event called “Highlights Beyond EC”, which invited talks about excellent papers that recently appeared in other publication venues; these talks were selected based on nominations and adjudicated by a dedicated committee. Our goal was preventing fragmentation, drawing in underrepresented communities, and maintaining EC as a “one-stop shop” for cutting edge research at the boundary between economics and computer science. This year we had five papers.
* We continued a process for nominating top, accessible papers for consideration as *CACM* Research Highlights.

To raise the SIG's public profile among academics and practitioners, we launched a Twitter account (@AcmSIGecom) that provides information about the SIG's events and output.

We have also undertaken a new effort to collect and analyze data on the SIGecom participant community and its impact. Building on preliminary efforts conducted as part of EC'19, we are aggregating information on the demographics, academic background, and research work of EC conference participants and contributors. This will help us better understand the composition and needs in our research community, and will specifically inform D&I efforts. Additionally, we have begun tracking the long-run outcomes of EC papers – determining when and where they eventually are published in journals, and what their applied impact is.

Finally, we continue to maintain a couple of practices that are unusual (unique?) among ACM conferences, so the following description is preserved from last year’s summary:

* To accommodate authors who publish journal papers in non-CS venues that do not allow previous conference publication, we allow single-page abstracts (which are reviewed as full papers and presented identically at the conference). This has grown from five or ten percent to over half the papers in the conference, forcing us to think carefully about the link between talks and archival papers. We now structure our best paper awards to allow recognizing an abstract-only paper but to ensure that at least one archival paper is recognized (as, indeed, happened this year). Based on discussion at the business meeting, we may drop this requirement going forward.
* We have an unusual “tracks” system in which papers are designated as belonging to “theory”; “AI”; “applied modeling” and “empirics”. Each of these has a separate SPC who oversee all papers from the track. This reassures minority communities in the conference that their work will be reviewed according to the community’s own standards, but is somewhat complex to handle in the conference management system. We continue to investigate alternative conference management systems that would work more smoothly with our conference structure.

**SIGSAM Annual Report**

**July 2019 – June 2020
Christopher W. Brown, Chair**

SIGSAM Mission statement:  SIGSAM provides members with a forum in which to exchange ideas about the practical and theoretical aspects of algebraic and symbolic mathematical computation. Its scope of interests includes design, analysis and application of algorithms, data structures, system and languages.

Communication: SIGSAM facilitates communication amongst not only its members, but also the wider symbolic computation research community. The primary vehicles for this are the SIGSAM website ([www.sigsam.org](http://www.sigsam.org)) and the SIGSAM and ISSAC mailing lists.  The wider SIGSAM-friends mailing list has an audience of 2,000+.  These mailing lists are used to announce a wide range of events and items of interest to the larger research community.  The website provides a wide range of information to the community, including SIGSAM activities & info (e.g. awards, elections, bylaws, committees).  The SIGSAM website also hosts the East Coast Computer Algebra Day (ECCAD) workshop series website and the International Workshop on Parallel Symbolic Computation (PASCO) workshop series website.  All of this is managed by the excellent work of SIGSAM Information Director Matthew England (U.K.).  This year we transferred the domain name management and website-hosting for the flagship conference series in our area, the International Symposium on Symbolic and Algebraic Computation (ISSAC) from its previous ad hoc arrangement to ACM/SIGSAM control. Related to the SIGSAM website is its social media presence via Twitter at @acm\_sigsam, managed by Alexander Konovalov (U.K.).

Communications in Computer Algebra: The ACM Communications in Computer Algebra (CCA) is a quarterly publication of the ACM sponsored by SIGSAM.  The CCA has been published since 1965, though previously as the SIGSAM Bulletin and the SIGSAM Bulletin.  It includes formally reviewed articles, timely communications and announcements, as well as traditionally publishing the abstracts of ISSAC posters and software demos.  It is published quarterly in the ACM Digital Library, and twice a year double-issues are published in print for members.  The current Editor is Dr. Wen-shin Lee from the University of Antwerp in Belgium, who continues to do an outstanding job.  Associate Editors are Massimo Caboara (Italy), Shaoshi Chen (China), Jean-Guillaume Dumas (France), Laureano Gonzalez-Vega (Spain), Kosaku Nagasaka (Japan) and Michael Wester (USA).

Conferences and Events: The International Symposium on Symbolic and Algebraic Computation (ISSAC) is typically either sponsored by ACM and SIGSAM or put on “in cooperation”.  ISSAC Proceedings have always appeared in the ACM Digital Library.  ISSAC 2019, which was hosted July 15-18, 2019 at Beihang University, Beijing, China, was sponsored by ACM / SIGSAM.  ISSAC 2020, which will be held July 20-22, was to have been in Greece but, due to Covid-19, will be online.  It is organized "in-cooperation" with ACM / SIGSAM.

Awards: The primary SIGSAM awards are the Jenks Memorial Prize, ISSAC Distinguished Paper award, and ISSAC Distinguished Student Author award.  The Jenks Memorial Prize is a biannual award recognizing “outstanding software engineering contributions in the field of computer algebra.”

The Awards Panel for the 2019 ACM SIGSAM Richard Dimick Jenks Memorial Prize (Chaired by Michael Monagan, Simon Frasier University) selected Michael Stillman as the winner for the Macaulay and Macaulay2 computer algebra systems. The award will be presented at ISSAC 2020.

2019 ISSAC Distinguished Paper Award: awarded to Florent Bréhard, Mioara Joldes and Jean-Bernard Lasserre for their paper "On Moment Problems with Holonomic Functions".

2019 ISSAC Distinguished Student Author Award: awarded to Manuel Eberl for his paper "Verified Real Asymptotics in Isabelle/HOL".

Some Impacts of SIGSAM Activities: The Fall 2018 SIG Governing Board meeting included a breakout brainstorming session on providing services for students and young researchers.  SIGs were encouraged to try to find ways to do more for students and young researchers in the coming year.  SIGSAM responded to this by sponsoring a special session "Introduction to the Scientific Refereeing Process" which ran on 15 July at ISSAC 2019.  The session was given by Manuel Kauers, from Johannes Kepler University, Austria.  From the session announcement: "Peer review is a crucial part of our scientific community, and understanding what is expected of a reviewer and what makes a good referee report is a crucial part of being a contributing member of that community.  The goal of this session is to help students and young researchers gain that understanding, though there is sure to be a lot there even for experienced scientists."

Key Issues for SIGSAM and its Membership: One of the key issues for SIGSAM is making the case for SIGSAM membership to the wider symbolic computation community, given that most of the services we provide are for members and non-members alike.  ISSAC 2020 being forced to move to a virtual format by Covid-19 is likely to have a substantial negative impact on membership.  One driver for membership is the reduced ISSAC registration fee, but with the virtual conference the registration fee was waived.  The near-term future of in-person conferences is, of course, a grave concern as well.

**SIGAda Annual Report**

**July 2019 - June 2020**

**Submitted by: Drew Hamilton, Chair**

**AWARDS**

Started in 1994, the ACM SIGAda Awards recognize individuals and organizations that have made outstanding contributions to the Ada community and to SIGAda. Robert Dewar was a key contributor to the Ada community and a co-founder of Ada Core Technologies, who died in 2015. The “Robert Dewar Award for Outstanding Ada Community Contributions” is given for broad, lasting contributions to Ada technology and usage. The SIGAda Distinguished Service Award is given for exceptional contributions to SIGAda activities and products.

This year the **Robert Dewar Award for Outstanding Ada Community Contributions** was awarded to the SPARK 2014 Team:
AdaCore: Steve Baird, Arnaud Charlet, Claire Dross, Jerome Guitton, Johannes Kanig, Yannick Moy.
Altran: Roderick Chapman, Pavlos Efstathopoulos, Andrew Hawthorn, Trevor Jennings, Stuart Matthews, Florian Schanda, Angela Wallenburg.

The SPARK 2014 team at AdaCore and Altran (formerly Praxis HIS) built a completely new version of the SPARK program verification toolset on the shoulders of the original SPARK language and toolset, the GNAT Ada front end, the Ada 2012 language design, and the latest verification technology represented by the Intermediate Verification Language Why3 and advanced SMT (Satisfiability Modulo Theories) Solvers. This advanced product represents the state of the art in program verification, and has single-handedly built interest in Ada-based technology in a new generation of organizations that are working to build high-security applications. SPARK 2014's verification capabilities kindled interest within Ada's conventional strongholds such as aerospace and defense, but also within new areas, among developers of critical systems such as security kernels, autonomous vehicles, medical devices, robots that collaborate closely with humans, etc. Adopters of SPARK 2014 tend to become adopters of Ada more widely, as the advantages of language-based safety and security become more apparent to the organizations that were initially focused only on their most safety- or security-critical applications. This is of huge benefit to the Ada community as a whole.

The **ACM SIGAda Distinguished Service Award** was awarded to Albert Timothy "Tim" Chamillard. Dr. Tim Chamillard has been an important voice in the academic Ada community. Tim was instrumental in the use of Ada 95 while on the faculty of the US Air Force Academy. Tim is a longtime Ada supporter and SIGAda member and has contributed many significant papers relevant to the Ada Community in Ada Letters. His Ada 95 textbook published by McGraw-Hill was particularly noteworthy.

**CONFERENCES/WORKSHOPS**

* **HILT (High Integrity Language Technology) 2020**

The SIGAda Executive Committee is continuing the two-year cycle for High Integrity Language Technology (HILT) events.

The HILT series of conferences and workshops focuses on the use of High Integrity Language Technology to address challenging issues in the engineering of software-intensive critical systems. The sixth event will be held the week of the 15th of November 2020 in as part of SPLASH 2020. Due to COVID-19, like many, many other ACM events, HILT 2020 is going virtual.

We anticipate the next HILT will be conducted in Fall 2022 with a greater emphasis on programming language security with the objective of expanding our audience and increasing cross-over attendance from the other co-located conferences. The National Security Agency has expressed interest in expanding secure programming techniques and we will look at including a track in HILT 2020 to support the NSA academic community although this initiative has been seriously, negatively affected by COVID-19.

The High Integrity Language Technology [(HILT) 2018 Workshop](http://sigada.org/conf/hilt2018) focused on the cyber-resilience needs of critical software systems, where such a system must be trusted to maintain a continual delivery of services, as well as ensuring safety in its operations. Such needs have common goals and shared strategies, tools, and techniques, recognizing the multiple interactions between security and safety.

HILT 2020 encourages papers and extended abstracts relating to:

* Safe and Productive Languages and Frameworks for the development of structured parallel and/or distributed applications (e.g. Rust, Concurrent Collections, Ada 202X, Parsl)
* Broadly available technologies to support large dataset analysis and machine learning workloads (e.g. TensorFlow, Apache Spark)
* Practical tools for applying static analysis and formal methods to parallel and/or distributed/cloud applications (e.g. SPARKProver, Java Pathfinder)
* Underlying Portability Frameworks to support higher level capabilities (e.g. OpenMP, OpenACC, OpenCL, MPI)
* Key technologies to bring high-performance computing to more traditional programming environments (e.g. advanced IRs supporting parallelism and heterogeneity such as MLIR and Tapir/LLVM)

This workshop is designed as a forum for communities of researchers and practitioners from academic, industrial, and governmental settings, to come together, share experiences, and forge partnerships focused on integrating and deploying tool and language combinations to address the challenges of building cyber-resilient software-intensive systems. The workshop will be a combination of presentations and panel discussions, with one or more invited speakers.

Workshop Co-Chairs

* Clyde Roby, Secretary-Treasurer, ACM SIGAda, Institute for Defense Analyses
* Tucker Taft, AdaCore, Inc
* Richard Wai, ANNEXI-Strayline

Organizing Committee

* Bill Bail, MITRE
* Robert Bocchino, NASA/Caltech Jet Propulsion Laboratory
* Ben Brosgol, AdaCore
* Kyle Chard, University of Chicago
* Drew Hamilton, Chair, ACM SIGAda, Mississippi State University, CCI
* John Kassie, Rockwell Collins
* Michael Klemm, Intel
* Nikolai Kosmatov, CEA List
* Burcu Kulahcioglu Ozkan, Delft University of Technology
* James Munns, Ferrous Systems
* Luis Miguel Pinho, ISEP P.PORTO
* Sara Royuela, Barcelona Supercomputing Center
* Ina Schaefer, Technische Universität Braunschweig
* TB Schardl, MIT CSAIL
* Alok Srivastava, Managing Editor, ACM Ada Letters, SAIC
* Joyce Tokar, Raytheon Technologies
* Jan Verschelde, University of Illinois at Chicago

URLs:

* SPLASH 2020: https://2020.splashcon.org
* HILT 2020 Information: https://2020.splashcon.org/home/hilt-2020
* HILT 2020 Submissions: https://hilt2020.hotcrp.com
* ACM SIGAda: [http://sigada.org](http://sigada.org/)

**Ada Letters**

Under the leadership of managing editor Alok Srivastava, we continued to publish Ada Letters. Luis Miguel Pinho has taken over as the technical editor of Ada Letters. SIGAda and Ada-Europe in particular have been discussing additional ways to coordinate our activities and share content across our user publications, to ensure efficient and effective connections to the industrial and academic computer science and information technology communities. We completed our initial integration of selected Ada-Europe content into *Ada Letters.* We are working with the National Security Agency academic outreach program to generated high integrity language papers for a Spring 2021 Ada Letters special issue. The December 2019 issue of Ada Letters is in the Digital Library and the June 2020 issue of Ada Letters is currently at ACM and should be published very soon.

We will continue to publish two to three issues of the Ada Letters newsletter each year, seek participation in the form of contributing articles and papers, and publish special issues providing archived proceedings for both the HILT and IRTAW workshops.

**PROGRAMS**

* **Significant Programs that provided a springboard for further technical efforts**

A formal liaison exists between SIGAda and ISO WG9 and that liaison is active. ISO/IEC JTC1/SC22 WG9 is that body of international representatives responsible for the maintenance and evolution of the Ada International Standard. The National Bodies represented on WG9 have included Belgium, Canada, France, Germany, Italy, Japan, Switzerland, the United Kingdom, and the United States.

In March 2007 the ISO (the International Organization for Standardization) in Geneva, Switzerland announced the formal completion of the process to revise the Ada 95 language, with the publication of the Ada 2005 standard — officially named ISO/IEC 8652:1995/Amd 1:2007. This announcement culminates a collaborative international effort under ISO's Ada Working Group (WG9) to enhance the 1995 version of the Ada language.

In November 2012, ISO (the International Organization for Standardization) in Geneva, Switzerland, announced the successful 14-0 ballot on the final draft of the Ada 2012 Standard, the document arising from the collaborative international process under ISO's Ada Working Group (WG9) to revise the Ada 2005 standard.  The official publication of Ada 2012 occurred in December 2012 -- officially named ISO/IEC 8652:2012.

The ISO WG9 working group has semi-annual meetings of WG 9 scheduled to coincide with the major conferences organized by ACM SIGAda and Ada-Europe. Officials of both organizations are active participants in the work of WG 9. Both groups have the status of Category C liaison with WG 9.

In January 2019, Technical Report 24772-2 (Guidance to avoiding vulnerabilities in programming languages – Vulnerability descriptions for the programming language Ada) was successfully balloted and forwarded to WG23 for publication.

At least one SIGAda Officer participates and represents the membership at the WG9 meetings held twice each year. This year the meetings were held at the 2019 Ada Europe conference in Warsaw, Poland. Tucker Taft (Vice Chair) represented SIGAda for these meetings and in the balloting.

* **Innovative Programs which provide service to some part of our technical community**

Since 1994 SIGAda has conducted an “Ada Awareness Initiative.” It includes our SIGAda professional booth display unit in exhibition halls at important software engineering conferences, as well as encouraging other Ada awareness activities, such as the “Make with Ada” contest sponsored by AdaCore, and an Ada “room” at the annual FOSDEM open source conference in Belgium. These activities let folks know that Ada is very much alive and a sound part of any software engineering effort having real-time, high integrity, high-assurance, and highly distributed requirements.

At the SIGAda booth, SIGAda provides various Ada-advocacy materials and makes available Ada experts (our booth staff volunteers) who can intelligently answer questions, provide pointers and help, and debunk the misinformation about Ada that many attendees at these events have. These programs continue to be successful and are viewed as an important thrust by the SIGAda membership.

A primary motivation for the fiscal health of SIGAda is to be able to continue these outreach efforts.

**FUTURE ISSUES**

* **Summary of key issues to deal with in the next 2-3 years**

As security issues become more and more urgent in the software industry, there has been increased attention on formal methods as a way to reduce security vulnerabilities within system software. The contract-based programming features of Ada 2012 have emerged as a very successful addition to the safety- and security-oriented features of Ada, allowing Ada to remain on the vanguard of technologies to address the growing security challenge. Over the next 2 years, SIGAda will continue to work with Ada tool vendors and other Ada-oriented organizations such as the Ada Resource Association, Ada-Europe, and the International Ada Real-Time Workshop (IRTAW) to increase the awareness of Ada and its value to the industrial community, which is facing growing security threats.

To summarize, SIGAda is focused on providing the greatest return on investment to our members by continuing our efforts to expand and improve our value to our membership.

* **SIGAda conference and workshop activity**

As mentioned above, the SIGAda executive committee has decided to continue a bi-annual workshop schedule, with the next SIGAda/HILT workshop planned for fall of 2020, focused on secure software development in the context of parallel and distributed/cloud programming. In conjunction with annual Ada-Europe conferences and bi-annual IRTAW workshops, we believe this schedule best fits the scale of the Ada community, and the monetary and organizational resources of ACM SIGAda.

**SIGGRAPH Annual Report**

**July 2019 - June 2020**

**Submitted by:** **Jessica Hodgins, President**

## Mission:

ACM SIGGRAPH’s mission is to nurture, champion, and connect researchers and practitioners of Computer Graphics and Interactive Techniques. (Approved by ACM August 2019)

## Five-year Vision: Enabling Everyone to Tell Their Stories

By **Everyone**, we mean not just our traditional audiences of the professional movie, animation, and game makers but everyone with a story to tell, be they trained or novice, with significant time for the development of their story or intending to publish with just a single click.

By **Tell**, we mean all mechanisms of conveying a story: watching, experiencing, interacting, and creating.

By **Stories**, we mean not only our traditional media of movies, animations, and games but also newer forms of media such as augmented, virtual, or mixed reality, or forms of interactive and sensory experiences not yet invented. Stories may be narrative, abstract, educational, or scientific. They may be purely digital or they may involve the physical artifacts either through incorporation or creation.

## Why this vision?

* Computer Graphics and Interactive Techniques (CG&IT) is about communicating in innovative and inspiring ways.
* Telling stories using CG&IT, whether it’s explaining research findings, entertaining audiences, or helping people understand the world, can change societies and cultures. We want to be the showcase for the existing and emerging fields that use CG&IT to connect people.
* We want to ensure we are relevant and meaningful to our existing diverse communities—this diversity of content and community has always been a strength of SIGGRAPH.
* We want to welcome newly emerging communities—this breadth is critical to our future success.

**Executive summary:**

As with most organizations and SIGs, our carefully laid plans for this year were drastically altered in mid-March when the members of our community moved to work from home and we began thinking about what it would mean to take our conferences virtual. Our two large conferences will both be virtual in 2020: SIGGRAPH 2020 (originally scheduled for D.C. in late July) and then SIGGRAPH Asia (originally scheduled for December in Daegu Korea). After a mammoth amount of work on the part of the SIGGRAPH 2020 conference organizing committee, we were able to put on a successful conference in late August. Because the organization had maintained a healthy reserve above the ACM required fund balance and because we included a virtual exhibit, we should close the conference with a fund balance for the organization that is not very far below the amount required by ACM. There were significant costs to these events, not only financially but in stress on volunteers who had to step up to a job that was much less well defined and much more work than what they had signed up for. We also had to cancel most of the organization’s strategic efforts on behalf of the community just at the moment when many members of our community were seeing major and unexpected shifts in their career paths. The next year will be critical for ACM SIGGRAPH as we layout strategic plans to attempt to best support our community during this difficult period for our industries, restore financial stability to the organization, and plan for future events that may also be fully virtual.

**Table of Contents**

## Strategy Committees 3

Nurturing our Existing Communities 3

New Communities 4

Data 5

Digital Presence 5

## Conferences 6

SIGGRAPH 2019 6

SIGGRAPH Asia 2019 8

## Awards 8

**Standing Committees** 10

Awards Committee 10

Chapters Committee 11

Communications Committee 15

Digital Arts Committee 17

Diversity and Inclusion Committee 17

Education Committee 18

External Relations Committee 20

Governance Committee 21

History Committee 23

Interactive and Immersive Experiences Committee 23

Information Technology Services Committee 25

International Resources Committee 26

Nominations Committee 27

Publications Committee 28

Specialized Conferences Committee 30

Student Services Committee 30

## Advisory Boards 32

Computer Animation Festival Advisory Board (CAFAB) 32

Art Advisory Group (AAG) 33

Papers Advisory Group (PAG) 34

## Key Issues facing ACM SIGGRAPH 34

**Appendix** 35

# Strategy Committees

For the past four years, the ACM SIGGRAPH Executive Committee has been directing its work to support the strategic needs of our communities. We devote the majority of in-person meeting time to strategic discussions and save the administrative and operational work for bi-weekly hour-long telecons. Now that in-person meetings are no longer possible, we have weekly calls, alternating between operational and strategic topics. We formed six strategy committees within the EC with the assistance of a few non-EC members and some of the standing chairs. One of those strategic committees (Governance) has become a standing committee, one has merged with an existing standing committee (Communication), and one is being retired (Data).

## Nurturing our Existing Communities

*Mission:*

Our objective is to develop strategies to retain existing communities as part of ACM SIGGRAPH, and in particular to encourage participation in our conferences. We have worked on several projects, and seen some of them through to implementation. Documents mentioned in the report are on the team drive

*Accomplishments:*

* Travel Grants: Committee formed, three grants per year. Note: these were not awarded because SIGGRAPH 2020 became a virtual conference and the funds have now been canceled from the budget.
* SIGGRAPH events
	+ Thesis Fast Forward: (Alex Vasilescu and Eftychios Sifakis) was located in the International Theater in 2019 and was very successful with a larger number of attendees (~50) than previously.
	+ SIGGRAPH Asia 2019 Brisbane: Thesis Fast Forward was integrated with Doctoral Consortium. Additionally, the Doctoral Consortium 2019 Chair, Peter Hill, Brian Wyvill, and Alyn Rockwood held a pre-event event in Los Angeles, CA, and a public event in Brisbane, AUS with good attendance (~50).
* Membership benefits: Preston has rewritten the earlier report and gathered data on other organizations.
* Lunch meeting with advisors at SIGGRAPH 2019. Advisors: Gavin Miller, Andrew Glassner, LA chapter chair.
* Began discussion of mentorship brainstorming document and onboarding template.

*Goals:*

* Year-round SIGGRAPH: A chair is being sought to manage a committee to redesign the Thesis Fast Forward as a year-round virtual event in light of SIGGRAPH 2020 has gone virtual. Making it a year-round event will also allow it to be better timed with the graduation of the students that it aims to serve.
* Discussion on improving the accessibility processes for inclusion across communities (adding subtitles, accessibility features as a norm) are in process.
* SIGGRAPH App: The project was transferred to the Digital Presence Strategy group.

## New Communities

*Mission:*

The mission of SIGGRAPH Frontiers is to reach out to new communities to broaden the base of SIGGRAPH to support our members as they evolve their research and industry careers to fit the changing landscape in computer graphics and surrounding areas. “New-Communities” here includes both, upcoming communities organizing around emerging research areas and established communities exploring problems where our expertise in computer graphics and interactive techniques can provide value. Our primary activities are a series of workshops at both SIGGRAPH and SIGGRAPH Asia and a set of morning talks at SIGGRAPH.

*Accomplishments:*

SIGGRAPH 2019:

* Frontiers Workshops: The Frontiers Workshops were full-day explorations into complex new problems for the SIGGRAPH community, providing a deep-dive for attendees on various topics as below:
	+ SIGGRAPH 2019 Workshops: Computer Graphics for Autonomous Vehicles, Content Generation for Workforce Training, Sim-to-Real: From Skilled Virtual Agents to Real-World Robots, Immersive Visualization, Cybersickness: Causes and Solutions, and Textiles: Virtual to Actual.
	+ SIGGRAPH Asia 2019 Workshops: Computer Graphics for Autonomous Vehicles and Car Experience, Truth in Graphics and the Future of AI-Generated Content, and Virtual Reality and Artificial Intelligence
* Frontiers Talks: The Frontier Talks were shorter format 45 min talks that highlighted problems where ACM SIGGRAPH’s expertise was uniquely suited to help create solutions. These included, How Computer Graphics Expertise Will Further the State of the Art in Machine Learning, Imaging a Black Hole with the Event Horizon Telescope, Metric Telepresence, Speculative Futures, Virtual Reality, and the Patient Experience, and Telling Complicated Scientific Stories with Graphics.

Both the Talks and Workshops programs were very successful in 2019. One talk had to be moved to a larger room to accommodate the 450+ person audience. Several attendees also encouraged us to expand the Frontiers programs for 2020.

*Goals:*

Having run some impressive full-house talk/workshops in 2019, we are looking to build on the momentum and expand the program this year. Trying to adapt to the changing times, we are also exploring ways to turn this into a yearlong program to keep the community engaged. Our goal for 2020 is to develop a virtual, and potentially year-round, format for Frontiers events. The SIGGRAPH community has been largely virtual for three months now and we have made several observations: virtual meetings are more tiring than in-person meetings and it is more difficult to hold people’s attention in virtual meetings, especially when those meetings are

one-way “webinars.” These observations have led us to embrace a sort of “fireside chat” model, something less formal than a traditional panel and focused around 3-6 people chatting for an hour with questions/interaction from the audience. We do not yet know what will work best but plan to experiment and develop best practices that we can use even after the pandemic to deliver year-round content and connect our community.

## Data

*Mission:*

The data strategy group's mission is to enhance our understanding of SIGGRAPH’s community and future. We would like to better understand “Who is SIGGRAPH”, what are the backgrounds, interests, and demographics of the community, at the conference and organization level. We are also pushing for an effort to increase the quality of our data.

*Accomplishments:*

A survey of the technical papers community was conducted to determine interests and concerns with moving the deadline away from the winter holidays. Ultimately there was no consensus to move the papers deadline, for more details see this [blog post](https://www.siggraph.org/presidents-corner-paper-deadline-survey/).

The data group assisted with a quantitative analysis of the tablet surveys that were conducted during the 2019 conference. It also provided data and had discussions with a firm the EC hired to evaluate the organization’s marketing capabilities. During the December EC meeting, it was decided to wind down this strategy team and move the work that was being done to a standing committee.

## Digital Presence

*Mission:*

Improve the organization's digital presence to help people connect to information and other people, including:

* + Collecting and archiving current and historical assets.
	+ Developing databases, servers, and interfaces for asset metadata storage and searching.
	+ Providing an online platform for networking, mentoring, and collaboration.

*Accomplishments:*

* + Collected and stored many more assets in Google Drive.
	+ Developed a working prototype of a graph database back end with a visual query-based exploration interface.
	+ An ongoing investigation into existing platforms for year-round networking, collaboration, and mentoring.
	+ Started work on an online volunteer database and an interactive org chart to help keep personnel listings on our website correct and to help find potential candidates for open positions.

*Goals:*

* + Continue to collect assets.
	+ Continue work on the graph database prototype; use it to store and manage all of the

SIGGRAPH-related Digital Library assets and potentially all other collected assets.

* + Get the volunteer database ready for real use; enter all relevant volunteer data.
	+ Choose and set up platforms for online networking.
	+ Hire a project manager and recruit help to make all of this happen.

# Conferences

## SIGGRAPH 2019

The SIGGRAPH 2019 conference in downtown L.A. concluded with its highest attendance since 2013, boasting 18,700 global professionals in computer graphics and interactive techniques. At the conclusion of the event, SIGGRAPH 2019 Conference Chair Mikki Rose said, “SIGGRAPH

2019 was a true spectacle for our community and I could not be happier for this event to have helped creators and scientists recharge and refuel for the year ahead. This year’s presenters delivered incredible content, once again, and I saw more young folks eager to learn than I’ve seen in my 17 years volunteering. I am so proud to be part of this global community and cannot wait to see it thrive for many years to come.”

SIGGRAPH 2019 played host to the latest innovations in art, science, technology, and more from over 700 presenters throughout its five-day stay in downtown L.A., and was enjoyed by an international audience from 79 countries. Representation from six out of seven continents included participants from the United States, Canada, Japan, New Zealand, Nigeria, France, Brazil, China, and more. This year’s Exhibition housed more than 180 diverse companies, each showcasing the latest in computer graphics hardware, software, and more. Select live-streamed sessions also reached an audience of nearly 20K additional viewers.

Other highlights from the conference included a fireside-chat format keynote on career and industry from Executive Vice President of Production at Marvel Studios Victoria Alonso ([watch](https://www.youtube.com/watch?v=qEJnVDii8VU&feature=youtu.be)

 [the live stream](https://www.youtube.com/watch?v=qEJnVDii8VU&feature=youtu.be)); the presentation of over 150 research papers; four world-premiere immersive experiences from Walt Disney Animation Studios, Magic Leap, Epic Games, and Parallux and NYU Future Reality Lab; a one-night-only Computer Animation Festival Electronic Theater event at Microsoft Theater; a two-day Business Symposium; sneak peek Production Sessions focusing on not only film and games but prestige TV from Netflix and HBO; a Talk on foundational principles for “the metaverse” from Epic Games CEO Tim Sweeney; Tuesday night’s Real-Time Live! retrospective and live awards vote; the first-ever 55-seat venue for virtual reality storytelling in the VR Theater; and, a special session celebrating 40 years of the Facial Action Coding System, or FACS. Attendees also enjoyed digital art installations and the chance to create and make within the Experience Hall.

SIGGRAPH 2019 Conference Award Winners:

**Art Gallery**

Best in Show – “RuShi” John Wong, John Wong Art

**Art Papers**

Best in Show – “CAVE: Making Collective Virtual Narrative”

Kris Layng, Ken Perlin, Corrine Brenner, and Sebastian Herscher, New York University / Courant and Parallux; and, Thomas Meduri, New York University / Courant and VRNOVO

**Computer Animation Festival Electronic Theater**

Best in Show – “Purl” by Kristen Lester, Pixar Animation Studios (United States) Best Student Project – “Stuffed” by Élise Simoulin of Supinfocom Rubika (France)

Jury’s Choice – “The Stained Club” by Mélanie Lopez of Supinfocom Rubika (France) Audience Choice – “Mayday – Final Chapter” by Muh Chen, Grass Jelly Studio (Taiwan)

**Emerging Technologies**

Best in Show – “Matching Visual Acuity and Prescription: Towards AR for Humans”

Jonghyun Kim, Michael Stengel, Ben Boudaoud, Josef Spjut, Kaan Akşit, David Luebke, Rachel Albert, Trey Greer, Ward Lopes, Zander Majercik, and Peter Shirley, NVIDIA; Jui-Yi Wu, NVIDIA and National Chiao Tung University; Morgan McGuire, NVIDIA and University of Waterloo; and, Youngmo Jeong, NVIDIA and Seoul National University

**Immersive (*Immersive Pavilion and VR Theater*)**

Best in Show – “Bonfire”

Larry Cutler, Eric Darnell, Wei Wang, Michael Hutchinson, and Nathaniel Dirksen, Baobab Studios

**Real-Time Live**

Best in Show and Audience Choice –

“GauGAN: Semantic Image Synthesis With Spatially Adaptive Normalization”

Taesung Park, University of California Berkeley; Ting-Chun Wang, Chris Hebert, Gavriil Klimov, and Ming-Yu Liu, NVIDIA; and, Jun-Yan Zhu, MIT

## SIGGRAPH Asia 2019

The 12th ACM SIGGRAPH Conference and Exhibition on Computer Graphics and Interactive Techniques in Asia took place in Brisbane, Australia at the Brisbane Convention & Exhibition Centre (BCEC). The annual event, which rotates around the Asian region, attracts technical and creative people from all over the world who are excited by research, science, art, animation, gaming, interactivity, education, and emerging technologies.

Last year’s edition of SIGGRAPH Asia, themed ‘Dream Zone’, featured eminent industry figureheads who are at the cutting-edge of the CGI, FX, and Animation industries. They inspired continuing dialogue about the industry’s challenges, and responsibilities, for matters such as cybersecurity for virtual worlds and characters, the impact of deep fakes and facial recognition, accurate and science-based data visualization, as well as the applications of visualization to, for example, autonomous driving vehicles. The event attracted 5,120 visitors and participants from 50 countries and regions, featuring over 800 speakers, and 68 participating exhibiting companies and brands, who came to Brisbane from over 15 countries and regions.

The Technical Papers program received a total of 309 submissions, out of which 93 were accepted to SIGGRAPH Asia 2019, resulting in an acceptance rate of 30%. The submitted articles represent the collective work of 1398 authors from 36 different countries, reviewed by the Technical Papers Committee (PC), which comprises of 45 experts from academia and industry.

# Awards

SIGGRAPH presented eight awards at SIGGRAPH 2019, and inducted eight people into the SIGGRAPH Academy:

**2019 Stephen Anson Coons Award:** Michael F. Cohen

For groundbreaking work in numerous areas of research—radiosity, motion simulation & editing, light field rendering, matting & compositing, and computational photography.

**2019 Computer Graphics Achievement Award:** Denis Zorin

For fundamental contributions that have advanced the fields of geometry processing, multiresolution shape modeling, and geometric principles of physics-based simulation in graphics.

**2019 Significant New Researcher Award:** Wenzel Jakob For work in rendering and geometry.

## 2019 Outstanding Doctoral Dissertation Award: Lingqi Yan

For a unified comprehensive view of visual appearance modeling for computer graphics rendering.

Honorable Mentions for the 2019 Outstanding Doctoral Dissertation Award:

* + - Angela Dai, Stanford University
		- Hao Su, Stanford University
		- Adriana Schulz, MIT

**2019 Outstanding Service Award:** Jackie White

For long term excellent dedicated service to ACM SIGGRAPH. **2019 Lifetime Achievement Award in Digital Art:** Donna Cox

For pioneering work in the art of scientific data visualization.

**2019 ACM SIGGRAPH Practitioner Award:** Stephen Hill

For implementing multiple advanced real-time techniques in various games and virtual reality experiences, and for leadership in sharing ideas with the rendering community.

**2019 ACM SIGGRAPH Distinguished Educator Award:** Andries van Dam

For impact on research practice in education as it relates to graphics and interactive techniques, cumulative contributions to the field, innovation in education, influence on the work of others, and being active in the ACM SIGGRAPH Community.

## 2019 SIGGRAPH Academy inductees

Frederick Brooks Marie-Paule Cani Donna Cox Markus Gross Dinesh Manocha Ravi Ramamoorthi Hanan Samet Denis Zorin

# Standing Committees

## Awards Committee

Chair: John (Spike) Hughes

*Mission:*

The Awards Chair is responsible for the oversight of the various awards committee chairs, and the SIGGRAPH academy chair, and for organizing the Awards Luncheon at SIGGRAPH. The Chair is also responsible for coordinating publicity (e.g., making sure the awardees don’t tell about their awards before SIGGRAPH has a chance to announce them), and working with contractors on the Awards presentation portion of the SIGGRAPH conference. Finally, the Chair is responsible for ensuring that individual awards chairs follow a reasonable sequence of succession, particularly for ensuring that the rising chair for any committee is known before SIGGRAPH, so that they can be announced, and the retiring chair thanked during the awards ceremony. This particular “chair” assignment is a little idiosyncratic, as there is no specified committee nor any committee meetings.

*Accomplishments:*

We have awards selected for this year and announced them publicly. We are in the process of ordering plaques and teapots for the award winners and sending checks to those awardees whose award includes an honorarium.

Planning for the Awards lunch was underway until the live conference got canceled. This simplified thing a good deal. It similarly simplified making travel and housing arrangements for awardees, for which we'd set up a new system that removed the Treasurer as middle-man in the arrangements.

Because there will be no in-person conference, we are creating award presentations recorded on video, with a brief video summary of the work of the awardees and examples of their work (although this is challenging for things like the dissertation award, educator award, and the service award).

*Goals:*

* The Chair hopes, by the end of his second year, to have some understanding of who is who, and what is what. For instance, this report is supposed to go in the "Committee Drive," but the chair does not know what that is, or where it is located. Similarly, the chair was informed of the need to be at a Chair's meeting that was to take place two days before SIGGRAPH … which wasn't part of the arrangement signed up for. So one goal is to collect all this kind of information -- the actual duties of the chair and the various chairs of the different awards committees -- in a single place so that the next person will have a better idea of what obligations they're incurring. (This includes things like a sketch of how to build a budget for the Awards program, for instance).
* Make nominations for the Athena award (or ask the Technical Awards chair to do so).
* Finish up arrangements with ACM for the automated inclusion of the Educator and Practitioner award winners in the Academy.
* Assuming that S2021 is an in-person conference, test and debug the new travel-and-housing arrangements system that we'd planned to use for S2020.

## Chapters Committee

Chair: AJ Christensen

*Mission:*

The ACM SIGGRAPH Professional and Student Chapters Committee strive to unite and grow ACM SIGGRAPH’s community of researchers and practitioners of Computer Graphics and Interactive Techniques by empowering our worldwide network of chapter leaders to operate as entrepreneurs to organize local events, collaborate across topics of expertise, interest, and

emergence, bridge geographical and cultural distance, and promote learning and professional networking all year long.

*Accomplishments:*

Professional (30 Active Chapters):

*Bangkok ACM SIGGRAPH Chapter Bogota ACM SIGGRAPH Chapter Caracas ACM SIGGRAPH Chapter Chengdu ACM SIGGRAPH Chapter Detroit ACM SIGGRAPH Chapter*

*Fort Lauderdale ACM SIGGRAPH Chapter Guadalajara ACM SIGGRAPH Chapter Helsinki ACM SIGGRAPH Chapter*

*Hong Kong ACM SIGGRAPH Chapter London ACM SIGGRAPH Chapter*

*Los Angeles ACM SIGGRAPH Chapter Madrid ACM SIGGRAPH Chapter Montreal ACM SIGGRAPH Chapter New York City ACM SIGGRAPH*

*Paris ACM SIGGRAPH Chapter Portland ACM SIGGRAPH Chapter Rochester ACM SIGGRAPH Chapter*

*San Francisco ACM SIGGRAPH Chapter Santiago ACM SIGGRAPH Professional Chapter Shanghai ACM SIGGRAPH Chapter*

*Shenzhen ACM SIGGRAPH Chapter Silicon Valley ACM SIGGRAPH Chapter Singapore ACM SIGGRAPH Chapter Sydney ACM SIGGRAPH Chapter Taipei ACM SIGGRAPH Chapter*

*Tokyo ACM SIGGRAPH Chapter Toronto ACM SIGGRAPH Chapter Vancouver ACM SIGGRAPH Chapter Viborg ACM SIGGRAPH Chapter*

*Washington DC ACM SIGGRAPH Chapter*

*Five Probationary Chapters Dhaka ACM SIGGRAPH Chapter Munich ACM SIGGRAPH Chapter*

*Orlando ACM SIGGRAPH Chapter Stamford ACM SIGGRAPH Chapter*

*Wroclaw ACM SIGGRAPH Chapter*

Student Chapters (13 active chapters):

*Bilkent University ACM SIGGRAPH Student Chapter*

*Bowling Green State University ACM SIGGRAPH Student Chapter Drexel University ACM Student SIGGRAPH Chapter*

*Embry-Riddle ACM SIGGRAPH Student Chapter MTSU ACM SIGGRAPH Student Chapter*

*NJIT ACM SIGGRAPH Student Chapter PCAD ACM SIGGRAPH Student Chapter RIT ACM SIGGRAPH Student Chapter*

*San Jose State ACM SIGGRAPH Student Chapter*

*Texas A&M University ACM SIGGRAPH Student Chapter*

*University of Illinois at Urbana-Champaign ACM SIGGRAPH Student Chapter University of Pennsylvania ACM SIGGRAPH Student Chapter*

*University of Tulsa ACM SIGGRAPH Student Chapter*

2 Probationary Chapters

*Louisiana State University ACM SIGGRAPH Student Chapter Stanford University ACM SIGGRAPH Student Chapter*

CONFERENCE ACTIVITIES:

SIGGRAPH North America 2019

* Workshop:
	+ The Los Angeles workshop was again a great success. We invited the EC and Standing Chairs to have breakfast with the PSCC and the Chapter leaders for the groups to interact, build relationships, and funnel new leaders into ORG leadership roles. Chapter leaders got to know each other by working on a collaborative problem-solving activity and continuing progress on our Chapter Management Handbook.
* Chapters Party:
	+ This was another great success. We hosted a VIP area for conference and ORG volunteers which had less attendance than expected, so we will work harder to promote this amongst ORG volunteers in the future. The Autodesk sponsorship provided light up toys for guests. We met the bar minimum easily, so the event was a financial success.
* Chapters Fast Forward:
	+ The Chapters Fast Forward was again held during the main conference instead of during the workshop. The event was held Wednesday morning at the ACM SIGGRAPH Theater. It is an opportunity for Chapter leaders to learn about what types of events other chapters are succeeding at, and what other chapters are

struggling with, for ACM SIGGRAPH members to understand what it takes to run a chapter, and for folks interested in starting a chapter to ask questions.

* Chapters + Student Volunteer Luncheon:
	+ This event has been a great opportunity to engage with student volunteers and raise their awareness of the organization and help them consider starting or joining student chapters. This year some unexpected hiccups prevented the event from being as successful as in the past that we will work on in the future.
* Leadership Hand-off:
	+ At the end of SIGGRAPH North America, Jacky Bibliowicz handed over the leadership of the Chapters Committee to AJ Christensen for his first term as Chair. AJ began working on assembling the next iteration of the committee with some old faces and many new ones to begin planning for SIGGRAPH Asia 2019 and chapter activities in 2020.

SIGGRAPH Asia 2019

* Workshop:
	+ The workshop in Brisbane had fewer attendees than usual, but five chapter leaders were still in attendance. We spent hours discussing how the Chapters Committee could better engage with our Asian chapters. We also welcomed an attendee who was considering starting a chapter in St. Petersburg.
* Chapters + Student Volunteer Luncheon:
	+ This event was a really impressive success and consumed a lot of planning and attention from the three PSCC volunteers who attended the conference. They were truly inspired - we had many conversations that lasted well past the event and made some lasting connections.

*Goals:*

SIGGRAPH North America 2020:

* Workshop 2020: We are in the beginning stages of planning a virtual workshop for chapter leaders.
* Chapters Party
* Chapters Fast-Forward
* Chapters/SV luncheon

SIGGRAPH Asia Conference 2020:

* Workshop:
	+ We will do extra outreach to grow participation numbers, and aim to find ways to build bridges between Asian chapters and the rest of the chapters network, as this has previously been a weakness.
* Student Volunteer Luncheon:
	+ We plan to repeat this very successful event with a fresh audience that SIGGRAPH Asia draws each year.

Other Initiatives:

* Bring the chapters network together more closely and interactively than ever before through a shared Slack space (this is in the beginning stages of rollout)
* Offer chapters the ability to host events for their members and the rest of the chapters network on a shared Chapters Zoom account that has a large attendance cap (currently 500, with the ability to grow to 1000).
* Understand how corporate relationships can be shared back and forth between the conference, the

organization, and local chapters. How can we present a united front and offer both small and large

opportunities for sponsorship?

* Build our recognition initiatives of new chapters in the community and successful chapters building up the community.
* Virtual all-hands video check-ins with chapter leaders throughout the year
* Continue the newsletter initiative
* Document our procedures as a committee, and encourage chapters to document their procedures in running chapter business
* Improve communication between Asian chapters and the rest of the chapters network
* Improve the PSCC’s productivity through a suite of virtual tools (Trello, Slack, Google Calendar, Zoom)

## Communications Committee

Chair: Evan Hirsch

*Mission:*

The Communication and Membership Committee recommends and then implements appropriate communication channels for the organization and its constituents. Designs and supervises build out of ACM SIGGRAPH electronic presence. Works with the EC to realize strategic communication and marketing goals. Oversees the SIGGRAPH Village at both SIGGRAPH conferences.

*Accomplishments:*

Over the last year, the Communications and Membership Committee has begun a restructuring process to better reflect the needs of the global organization from a strategic perspective, and also to reflect how our operating environment has changed over the last few years (pre-COVID). This began with the awarding of a contract, to a consultancy and the subsequent completion of an audit with analysis of all marketing and communications efforts across the entire organization. These findings were reviewed by representatives from the EC, the NA, and Asia Conference teams. While the detailed findings have been shared with the EC, the review resulted in many recommendations and policy adoptions, that include, but are not limited to:

* The conferences should no longer create a new logo/brand treatment for each conference (each year) as doing so dilutes the value of the overall SIGGRAPH brand identity. A preliminary set of new logo guidelines has been shared with the NA and Asia conference CAGs to use going forward. A more thorough SIGGRAPH Brand Style and Usage document will be completed and shared later this year.
* The conferences have been asked to:
	+ Align their marketing as intentionally as possible with the organization’s Mission Statement; this includes improving alignment between all of the teams’ editorial messages and calendars.
	+ Ensure all communications are presented from the perspective as to their relevance and value to a constituent, and less emphasis on current trends or entertainment values.
* An agreement was reached to do a predominately aesthetic facelift of the organization’s website (this process will start in fall 2020)
* The organization will shift its communications efforts to have a strong emphasis on video as communications media.
	+ We auditioned a few video editors and subsequently hired one to create multiple video pieces for use on the organization’s website, YouTube channel, and assist the history committee.
	+ Starting with 2020, the Communications team is creating videos for each Award winner that visually celebrates their work. These videos will initially be shown when the awardee receives their award, and the Awards page on SIGGRGAPH.org afterward.
	+ A set of recruitment videos to drive volunteer recruitment using the theme “Why I volunteer for SIGGRAPH”
	+ All videos created by our team will be edited to emphasize the relevance of computer graphics and interactive techniques to the society beyond our memberships
* Conference-in-a-Box was ready to go to purchase, however, this has been tabled until the ramifications of COVID on conference attendance become clearer.
* Responsibility for Membership and the SIGGRAPH Village have been transferred to other standing committees to enable the Communications team to tighten our focus

*Goals:*

* We have re-evaluated the roles and responsibilities needed for the Communications committee going forward and have arrived at the following list of volunteers needed:
	+ **Communications Chair** (Evan Hirsch)**:** Overall committee leadership strategic alignment of EC needs with communication efforts including Editorial Calendars, Brand Identity, logo and brand protection, management, co-branding, and standards.
	+ **External Programming Chair** (new role, Barb Helfer): works with external conferences and strategic partners to determine what SIGGRAPH content is most appropriate to being shared with the respective audiences.
	+ **Social Media Manager** (TBD): manage all of the organization’s social media efforts and needs, interfaces with NA and SA Social media efforts.
	+ **Member Profiles editor** (Theresa-Marie Rhyne): creates spotlight pieces for various members throughout the year
* **Video Manager** (new role, Christobel Chang): to manage all video production and needs
* **Frontiers newsletter** (\*need still to be clarified, TBD): provide specific content to bolster the organization’s strategic efforts to broaden our appeal beyond what has been traditionally viewed as CG+IT. (likely to be 9 issues per year, by guest editors of Pioneers)
* **Video Editor(s)** (Contractor): professional video editors to edit content for respective channels
* **Communications/PR Consultant** (contractor): professional PR person to help drive messages and create trade, business, and consumer media-friendly content and messaging.
* **Content Manager** (Contractor, TBH): part-time contractor to manage all the content needs across all Communications efforts.

## Digital Arts Committee

Chair: Victoria Szabo

*Mission:*

Fosters year-round engagement and dialogue within the digital, electronic, computational, and media arts. Facilitates dynamic scholarship and creative programming for the digital arts within the ACM SIGGRAPH organization. Promotes collaboration between artists and the larger computer graphics and interactive techniques community. Promotes collaboration between the Digital Arts Committee (DAC) and the art programs of the conferences.

*Accomplishments:*

This year, as we did last year, the Digital Arts Community continued its focus on engaging with the Annual Conferences and the broader Digital Arts Community. At the annual conference in 2019, we debuted a new online, juried exhibition, “The Urgency of Reality in a Hyperconnected Age,” after soft-launching it at SIGGRAPH Asia 2018. This exhibition debuted in talks and through a kiosk co-located with the Art Gallery. We held the Art Party on-site at the Art Gallery at S2019, a first in several years, which brought together a wider group at the conference and made special arrangements to bring in the local digital arts community in LA through an Eventbrite ticketing system. We also hosted a very successful joint panel on AI and Art with Leonardo LEAF. Over the course of the year, we updated our policies and procedures to help organize our events and serve as a model to other committees. We also continued to build the Digital Art Archives project, with the support of ACM. We have developed a new online platform for showcasing DAC activities and are looking to upgrade the Ning platform while we investigate possible portfolio-sharing platforms in the future. We have developed our Facebook presence, and continue to prioritize social media and outreach for next year to ensure we cast a wider net to include more potential community members.

*Goals:*

We are currently finalizing our latest online exhibition, “Digital Power: Activism, Advocacy, and the Influence of Women Online,” which we will launch online in July. In anticipation of the virtual S2020 we anticipate hosting online synchronous and asynchronous sessions on the Archives project, Digital Power, and potentially topical discussion sessions related to current issues, ideally in partnership with Leonardo LEAF and Ars Electronica. We are also exploring the use of virtual world environments for community “mixers” online during the conference, and are considering their ongoing use post-conference. Our goals for next year include launching a new online exhibition, and developing periodic, perhaps monthly live crits and presentations with speakers in coordination with Diversity and Inclusion, Education, and other specialized communities. We will also be working on converting our older WordPress based exhibitions to a static format to ensure the longevity of access as technology platforms change. We plan to represent our community at the College Art Association and ISEA International and to work more closely with SIGGRAPH Asia to ensure the DAC is visible in those venues.

## Diversity and Inclusion Committee

Chair: Tony Baylis

*Mission:*

Celebrates the diversity that exists within the ACM SIGGRAPH community and provides opportunities, both in-person and year-round, to connect with others with common backgrounds, ethnicities, and gender for mentoring and inspiration. The goal of this committee is to create a welcoming and nurturing community for everyone working in computer graphics and interactive techniques independent of gender, sexual orientation, ethnic background, or abilities.

The Diversity and Inclusion Committee focused on refining our strategic plan, goals and objectives, and execution of actions. Our committee also grew as we added new members: Lynn Villafuerte (new to ACM SIGGRAPH), Gwen Loftman, Adam Shay, and Myriam Beauvais (former Student Volunteers). Jessica Butterbaugh, Aparna Dattawalker, and Santiago Echeverry scaled down their involvement with the committee.

*Accomplishments:*

During the 2019 fiscal year, the Diversity and Inclusion Committee completed the following activities:

* Curated panels and presentations for the SIGGRAPH 2019 North America and Asia conferences, listed:

 [SIGGRAPH 2019](https://s2019.siggraph.org/conference/programs-events/organization-events/diversity-and-inclusion-summit/)

 [SIGGRAPH 2019 International Resources Committee](https://sa2019.siggraph.org/attend/international-resources-committee-sessions)

* We co-hosted the Women’s Research Luncheon at SIGGRAPH 2019.
* Together with the International Resources Committee, we developed Diversity and Inclusion content of interest to our international community at SIGGRAPH Asia.
* This year, our work also included raising additional awareness of our committee by hosting town halls, attending community get-togethers, advertising via ribbons at conferences, and marketing using social media.
* We refined our Mission, Vision, Purpose, and Goals, and have been added to the

 [SIGGRAPH website](https://www.siggraph.org/connect/diversity-and-inclusion/).

* We expanded our SIGGRAPH Cares initiative to engage and also train other areas of our community including but not limited to our conference student volunteers. Our chair for SIGGRAPH Cares also created a reporting form and process to assist with the intake of incidents.
* We began working toward collecting data from conference attendees via surveys at our major conferences. We are still at the initial phase of this evaluation thus we anticipate to continue this effort through multiple years at the conferences.
* Alex Bryant was active in highlighting relevant individuals by facilitating the ACM SIGGRAPH blog and SIGGRAPH Spotlight Podcast.
* Two members of the committee, Tony Baylis and Diana Arellano were invited as speakers at Eurographics 2020 as part of the [Diversity and Inclusion](https://conferences.eg.org/egev20/program/diversity-panel/) panel
* We released a [call for participation](https://s2020.siggraph.org/conference/program-events/organization-events/diversity-and-inclusion-summit/) for the NA conferences that resulted in 10 submissions.
* We launched a webinar series that will highlight the content of interest from the entire community. A [guide to SIGGRAPH D&I webinars](https://docs.google.com/document/d/1EIVetHlCHc_M5nC10FkRDjYXgA3eou1GVJ65EvlN2W4/edit?usp=sharing) were also created by Myriam Beauvais and Alain Chesnais.

## Education Committee

Chair: Ginger Alford

*Mission:*

The Education Committee works to support educators in computer graphics and interactive techniques. This encompasses technical, creative, applied, and interdisciplinary studies in higher education that intersect curricular areas of computer science, engineering, art, design, and related disciplines. The Education Committee undertakes a broad range of projects and activities in support of the computer graphics and interactive techniques education community, such as developing curriculum guidelines, providing instructional resources, organizing SIGGRAPH conference-related activities, and outreach.

*Accomplishments:*

* Support and engagement of VR Educators have gained momentum. The second VR Educators BoF in 2019 spurred 40 interested VR Educators to meet throughout the year and work on several areas. One group is developing curriculum and soliciting instructional materials. Another group is working on what has become known as The Dome Project, which aspired to provide a 18’ Dome as a resource at the conference. Another group will be presenting juried content at the Educators Forum. Also, the Education Committee sponsored an ED-EX 2019 Workshop during the VRCAI 2019 Brisbane.
* The recently created Communications Director role has resulted in the regular and more intentional use of social media platforms including Facebook, LinkedIn, Twitter, and Instagram. The Communications Director is committed to implementing a communications plan that is coordinated across the committee and the organization. This has been an effective structural change on the committee and promises to be a good vehicle for future communication.
* Ongoing conference activities organized by committee members included a popular Industry panel on how to prepare students for industry, the annual SpaceTime Student Poster Contest, Faculty Submitted Student Work Showcase of Assignment and Student Work, Educators Meet and Greet and Education Committee sponsored Birds of a Feather.
* A pilot conference program called ‘In Good Company’, in coordination with exhibitions management, had two speakers from the exhibitor list discuss generic

education-focused problem solutions at the Education Booth.

* Our work developing relationships with other organizations include designating Susan Reiser as the SIGGRAPH representative to the ACM Education Council, designating Erik Brunvand as SIGCSE Liaison to arrange reprise presentations at our respective annual conferences. We also regularly have Beatriz Sousa-Santos, the Chair of the Eurographics Education Committee, in attendance at our meetings. We informally connect with the LEAF Education Committee. This is an area, in general, that would benefit from more intentional development.
* High School Outreach has changed significantly. The Conference Education Liaison has taken on the coordination for local high school groups wishing to visit the conference. The Pioneer Mentor Program was retooled to serve students of a minimum age of 18, who would be recent high school graduates. There was a drop in the number of participants to only 8 for 2019. The prospect of the program for 2020 is uncertain with a virtual conference. This is a program that deserves additional clarification to review the goals and the most effective ways to meet student needs.
* Glenn Goldman did significant work developing committee policy documents per EC direction and samples. Reviewing and revising as a committee is something we do annually at our in-person meeting.
* The Resources Subcommittee provided a new interactive tool for more effective browsing a collection of assignments provided through the Faculty Submitted Student Work program. They report over 16,000 website visits over the year, with 10% returning.

Decisions regarding what platforms the larger organizations support will impact our ability to maintain the website and is a bit of a concern.

*Goals:*

* Install an 18’ Dome at the 2021 SIGGRAPH Conference for showcasing student work in immersive environments and to support discussions of best practices and challenges in immersive education. With a great deal of the groundwork established for having a dome and with more time to coordinate use across the entire organization, the Education Committee Dome Working Group continues to work towards achieving this goal. This will require early and frequent conversations with all stakeholders. The EC can help provide direction and facilitate coordination with other Standing Committees.
* We will continue to develop resources. We have identified the priority as creating a repository of VR/AR/MR instructional materials and best practice experiences on the Education Committee website for VR educators.
* Move conference activities to a virtual format as appropriate. This includes the SpaceTime Student Poster Contest and the Faculty Submitted Student Work.
* Develop new virtual initiatives to strengthen, engage, and support the education community in light of current COVID-19 restrictions including focused virtual gatherings to discuss challenges of online teaching, sharing of resources, and more focused issues.
* The Resources Subcommittee is planning to create curated lists of useful educational resources in the ACM Digital Library and at SIGGRAPH University. These lists will be posted on the Education Committee website to serve as an easy to use an index into a small subset of materials by topic. With 16,000 visitors to the website each year, we hope this index will increase the usage of archived materials.

## External Relations Committee

Chair: Diana Arellano

*Mission:*

Manages relationships with professional societies and organizations that are external to ACM. Working with the EC, this committee identifies and establishes relationships with new organizations according to the current strategic plan.

*Accomplishments:*

* The External Relations Committee was formed and it is composed of seven members who can help grow our relationship in the arts, industry, and scientific fields.
* We renewed our partnerships with VIEW Conference, IEEE VGTC, Eurographics (adjustment of joined membership discount), CG-ARTS. We initiated a new partnership

with VR Days and we’re working on a partnership with the recently successful RealTime Conference.

* We initiated conversations with the SAE (Society of Automotive Engineers).
* We released a blog article about our partner conferences that went online (e.g. Laval Virtual) and other conferences in the field and their experience going online.

 [https://blog.siggraph.org/2020/04/outlook-the-present-and-future-of-partner-conferences.](https://blog.siggraph.org/2020/04/outlook-the-present-and-future-of-partner-conferences.html/)

 [html/](https://blog.siggraph.org/2020/04/outlook-the-present-and-future-of-partner-conferences.html/)

*Goals:*

* To sign cooperation agreements with SAE and Ars Electronica
* To work together with the CAFAB (Computer Animation Festival Advisory Group) in join agreements.
* To define and shape the idea of a “Partners Lounge”. This is the option for a scalable Partners Space at SIGGRAPH.
* To collaborate with the Diversity and Inclusion Committee to come up with a type of agreement that includes D&I initiatives. A first example would be together with Eurographics and IEEE VR.
* To find a better way to collaborate with the Communications Committee to have a standardized promotion exchange with partners (part of our cooperation agreements).
* To find ways to support CG-ARTS to work closely with the Education Committee.

## Governance Committee

Chair: Scott Owen

*Mission:*

The Governance Committee examines the policies, procedures, and structure of ACM SIGGRAPH and recommends changes to the Executive Committee who approves or rejects them. All of the changes below are reflected in the ACM SIGGRAPH Policy Guidelines.

*Accomplishments:*

In the past year the Governance Committee has recommended, and the Executive Committee has approved, the following significant changes:

* The Governance Committee changed from a Strategy Group to a Standing Committee.
* Section 2.7 Meetings. Formalized method of voting, the conduct of EC meetings, and content of EC

meeting minutes.

* Added to Section III the Officer Term limits and Officer Selection process.
* Section 4.2 Modified composition of the Finance Committee.
* Modified Section 5.4 Petition Candidates.
* Section 6.2 Advisory Boards. Formalized method for soliciting and approving of Advisory Board
* Chairs.
* Added Section 7.9 on policy for significant Program Changes for SNA and SA.
* Section 9.2 Added new policy on changes and cancellations for Specialized Conferences.
* Section 9.3 Modified to clarify bookkeeping issues.
* Section 11 Expense Policy - Added that all meetings should be finalized eight weeks before the

meeting and must be finalized four weeks before.

* Modified Section 11.3 Air Travel.
* Modified 11.5 Hotel Expenses to state that for SNA and SA the hotels must be booked by the

official cut-off date.

* Modified Section 11.7 Travel Finances.
* Section 12 Automatic induction into SIGGRAPH Academy for Education and Practitioner awardees.
* Section 12.1 Modified description of Outstanding Service Award Committee
* Added Section 12.5 Creation of New Awards
* Added Section 14.5 on Executive Committee emails lists

*Goals:*

* Policy on making major monetary commitments for the distant future for Specialized Conferences.
* More detail in the procedure for SNA/SA choice of cities.
* The Guest pass policies for SNA and SA.
* Policies on External Relations with commercial (for-profit) entities.
* Possible Committee(s) on Membership and Volunteer retention.
* Policy on Section XIII: Logo Use about all external communication, marks, etc.
* Who should be in charge of SIGGRAPH Village at SA/SNA.
* Should we have a Courses Advisory Board with someone from New Communities Strategy Group.

## History Committee

Chair: Mary Whitton

*Mission:*

The committee’s goals and priorities are: (1) to preserve the stories and artifacts of our community and industry, (2) to make the collected materials broadly accessible by the public,

and (3) to document the impact of SIGGRAPH on the development of computer graphics, the computer graphics industry, and industries enabled by the graphics and imaging. (EC added this in 2019.)

*Accomplishments:*

* Committee news: Erica Hornung, a professional archivist, has joined the committee
* Preserving Stories: Reb Perry and the team recorded ten new interviews; two new session recordings.
* Preserving Artifacts: Papers of Mark Elsen almost ready to go to the Charles Babbage Institute; SVR issues 1-130 reformatted and archived on SIGGRAPH shared Google drives.
* Making Material Accessible: Our star project is the SIGGRAPH Art Archive website,

<https://digitalartarchive.siggraph.org/>. Julian Gomez and Paul Strauss continue to work on graph/query-based searching; pipeline from CVS to data visualization in place (alpha).

* Documenting impact: Ramping up this project has been hard as it is rather undefined as to target audience and scope.

*Goals:*

* Celebrating SIGGRAPH’s 50th conference and 54th year in 2023—honoring the past and moving forward. Finding key volunteers soon is essential
* Design and begin a population of the History Web Site
* Continue finding funding for preservation/archiving/indexing
* Gathering stories: Integrate better with a conference-related interview and video capture plans and funding.
* Impact: Work with strategy folks to understand what they want from this project and get their help finding a lead for it.

## Interactive and Immersive Experiences Committee

Chair: Mark Billinghurst

*Mission:*

The vision of the Immersive and Interactive Environments Committee is to support researchers and practitioners involved in the design and creation of interactive and immersive experiences and promote them throughout the SIGGRAPH organization. The Immersive and Interactive Environments Committee was created to raise awareness of Interactive and Immersive Experiences at the SIGGRAPH conferences and in the broader community. This includes creating a web portal showcasing Interactive and Immersive Experiences, identifying leading examples of Interactive and Immersive Experiences, promoting education and innovation in the area, etc.

The 2019-2020 year was the first year that the committee was in operation, and this was mostly spent focusing on establishing the committee, arranging regular meetings, and getting an initial program of activities started. Our efforts have been significantly hampered by the COVID-19 pandemic, but we anticipate being able to increase our activities from July 2020 onwards, as countries and institutions begin to open up again.

*Accomplishments:*

Progress was made in the following areas:

* Recruiting a diverse membership to committee roles
* Setting annual goals and a vision statement
* Establishing regular meetings
* Beginning a program of work to encourage more interactive and immersive technical paper submissions to SIGGRAPH and SIGGRAPH Asia
* Coordinating with the External Relations Committee
* Beginning social media and web developments

*Goals:*

Annual Goals: In 2019 we set the following goals for 2020:

* *Complete recruiting committee members*
	+ We will create a diverse committee or 7- 10 members who can work together to achieve the goals of the Interactive and Immersive Experiences committee.
* *Increase technical submissions in VR/AR/Interactive Experiences for SIGGRAPH*
	+ We plan to significantly increase the number of submissions and accepted technical content in SIGGRAPH in the areas of AR/VR and Interaction. To achieve this, we will need to develop a plan for increasing SIGGRAPH technical submissions with AR/VR/Interactive content.
* *Create a Social Media presence and a Social Media Plan*
	+ We will create a Social Media presence that we can use to communicate with and connect to the broader SIGGRAPH community and beyond. This should include platforms such as Facebook, Twitter, LinkedIn, etc.
* *Create a Website*
	+ We will create an online presence for our committee, which can be used as a repository for Interactive and Immersive related material, a place for announcements to be made, an online focus for the community, etc.
* *Connect with other external SIGGRAPH committees*
	+ We will work with other ACM SIGGRAPH standing committees, also CAG and SACAG to get our influence on future conference programs, and alignments, so we can help more than less.

We will continue to work on these in the second half of 2020, and plan to revisit our goals at the end of 2020.

* Promoting Publications: One of the main goals for 2019/2020 was to devise a plan for increasing AR/VR/Interactive submissions to the technical program of SIGGRAPH and SIGGRAPH Asia. Although AR/VR/Interactive works are well represented in the Etech, Art Gallery, and other areas, they have typically been significantly underrepresented in the technical papers program. Laura Trutoiu has been working with the current and previous Papers chairs for SIGGRAPH to understand the extent of submissions and explore options for increasing them. We will have a report about this created in July/August 2020 and then move to work on a plan for increasing submissions.
* External Relations Committee: Mark Billinghurst was invited onto the External Relations Committee at the end of 2019, chaired by Diana Arellano. Since then he has been attending monthly meetings, specifically with a focus on helping identify opportunities for SIGGRAPH to connect to the various AR/VR/Interactive conferences and events being held.

## Information Technology Services Committee

Chair: Aaron Hosier

*Mission:*

The Information Technology Services committee manages and supports various services for ACM SIGGRAPH including the servers used to host organizational websites; creating, maintaining, and supporting email lists used within the organization for committees, conferences, and chapters; and the management and support of the ACM SIGGRAPH Google GSuite site.

The ITS committee also participates in organizational strategic efforts. The ITS committee is involved with the Data and Digital Presence strategy teams. Working in conjunction with the History Committee it is working to identify, collect, and organize assets owned or available to ACM SIGGRAPH. As part of the Data team, it has been working to redesign the conference registration questions and post-survey system to gain better and new insights into our attendees.

*Accomplishments:*

One of the more significant efforts this year has been working with ACM SIGGRAPH's new project manager. This work has helped bring to light several significant issues with the ACM SIGGRAPH website that we have been working to resolve. It has also forced us to re-evaluate some of the design decisions of the website, looking for better ways to operate and maintain the site.

With respect to our Google GSuite site, we have seen tremendous growth in usage. For Chapters, it has become a growing resource for their needs and has allowed them to consolidate a lot of their information, documents, etc. in a common location where they can then centrally control the access. The strategy teams have also greatly utilized the system for various things.

Work this year has also been done on several items related to ACM SIGGRAPH's strategic efforts. Assets have been collected from throughout the organization, placed within various GSuite Shared Drives, and then made available to organized and cataloged.

*Goals:*

Initial designs for a volunteer database system have been completed, with work on an initial data entry system being done at this time.

## International Resources Committee

Chair: June Kim

*Mission:*

Promoting ACM SIGGRAPH and Connecting our global community of computer graphics and interactive techniques with both on-site and year-round activities.

*Accomplishments:*

Conference organization focused:

* + Organization of ACM SIGGRAPH theatre and International Centre for the SIGGRAPH 2019, Los Angeles
	+ Organization of ACM SIGGRAPH theatre collaborating with the Diversity & Inclusion Committee at the SIGGRAPH Asia 2019, Brisbane, the first time in SIGGRAPH Asia
	+ Ran the ‘What is ACM SIGGRAPH?’ session first time in SIGGRAPH Asia inviting ACM SIGGRAPH committee members/chairs to introduce the activities of each committee such as DAC, Chapters, D&I, and Interactive & Immersive committees

Creating a healthy and collaborative committee environment:

* + Run the first half day International Resources Committee workshop on the last day of SIGGRAPH 2019
	+ Slack channel and fortnight meeting are on to create an open and collaborative committee environment
	+ Collaboration with SIGGRAPH Asia Student Volunteer team to work on the audio guide and translation work together
	+ Organization of an inclusive IRC luncheon at both SIGGRAPH 2019 and SIGGRAPH Asia 2019 inviting a couple of student volunteers, regular BOF organizers, and other committees to listen to stakeholders’ opinion to improve our service

*Goals:*

* + Consideration on opening a two-way/open communication channel to listen and discuss expectation of attendees and SIGGRAPH members from IRC and ACM SIGGRAPH
	+ Organize gatherings such as an international night at the SNA, ACM SIGGRAPH coffee & tea at SA.
	+ Maintain a supportive and transparent environment that all committee members share and support each other

For sessions we run as a part of SIGGRAPH theatre, our goals to focus are:

* + Showcase the landscape of CGI industry not yet widely known countries to ACM SIGGRAPH community (i.e. Work in progress of organizing to introduce VFX industry in Morocco and Tunisia in this SIGGRAPH 2020)
	+ Running more panel session to discuss the hottest topic of a year in a particular region (Asia, Latin America, etc.) to have in-depth debates than share overviews only

Enriching the organization of ACM SIGGRAPH theatre in SIGGRAPH Asia conference:

* + Organize sessions to introduce and promote ACM SIGGRAPH to SIGGRAPH Asia community and local CGI community.

## Nominations Committee

Chair: Rebecca Strzelec

*Mission:*

Selects slate for the annual Executive Committee election. Recommends candidates for Chairs of Standing Committees to the Executive Committee.

*Accomplishments:*

The Nominations Committee facilitated the interviewing and selection of the Executive Committee slate for 2020. The slate is as follows:

DIRECTOR A:

Corinne Price, ICF Elizabeth Baron, Silverdraft DIRECTOR B:

Jesse Barker, Unity Technologies Makai Smith, Bentley Systems, Inc DIRECTOR C:

Hanspeter Pfister, Harvard John A. Paulson School of Engineering and Applied Sciences

Tomasz Bednarz, The University of New South Wales (EPICentre)

The Commonwealth Scientific and Industrial Research Organization (Data61)

The Nominations Committee managed applications, conducted interviews, and made recommendations for the following for Chair positions:

APPROVED: Paul Kry (Specialized Conferences, replacing Joaquim Jorge) APPROVED: Ginger Tontaveetong (Early Career Development, replacing Corinne Price) APPROVED: Jonali Bhattacharyya (Lifelong Learning Committee, new committee) APPROVED: Elizabeth Baron (Practitioner Career Development, new committee)

Rebecca Strzelec and Scott Owen worked through an issue identified in the use of our new slate format with ACM. There is now a modified policy that reflects which category a petition candidate is assigned to. They are assigned by ACM Election Services according to the most fitting field/occupation. The petition candidate does not get to choose which category they are assigned to after the slate is announced. The policy caused the petition potential candidate to decline their candidacy.

*Goals:*

Assuming an in-person conference for SIGGRAPH 2021, we will not be holding any type of Nominations event to meet the EC candidates. It has been determined that it is a waste of money. Additionally, the Nominations Committee recommends that any printing of PR materials to advertise for the election be eliminated from the budget. It is also a waste of money as it does not increase voter participation.

As Chair, I hope to find a better cadence with regards to EC and Nominations Committee communication. This year there were several instances where decisions and processes were held up, in some cases for months, because the conduit between the Nominations Committee and the EC was ineffective. These mostly occurred with the posting of position advertisements, but we can also do better with day to day communication and follow through--all around.

## Publications Committee

Chair: Stephen Spencer

*Mission:*

Documents the content presented at our annual events, using channels that are efficient and cost-effective. Works with ACM Publications Board as new situations arise and on items with broader implications.

*Accomplishments:*

Ongoing initiatives include working with the organizers of numerous sponsored events to collect content and prepare the proceedings of their event, working with vendors to prepare physical deliverables for distribution, and working with ACM personnel to import that content into the ACM Digital Library.

Over the past twelve months, I have worked with the organizers of the following sponsored events: SIGGRAPH 2019, SIGGRAPH Asia 2019, CSCS, CVMP, DigiPro, ETRA, I3D, MIG, SAP, SCA, SCF, SUI, VRCAI, VRST, and Web3D.

*Goals:*

* Working with conference organizers, program chairs, and ACM personnel to rewrite several of ACM’s rights management forms to better serve the conferences’ needs.
* Continuing to improve the documentation available to authors of works submitted to sponsored events.
* Creating completely new documentation for contributors and production editors for their interaction with TAPS, and working with ACM personnel to prepare documentation for TAPS, hopefully building on what has already been written.
* Continuing to provide support to ACM personnel on all matters related to TAPS. Our sponsored events have used TAPS since the fall of 2019, they are using it at present, and ACM will be making TAPS available to the ACM community in early 2021.

## Specialized Conferences Committee

Chair: Joaquim Jorge

*Mission:*

Approves and monitors specialized conferences to ensure that they are financially and intellectually healthy and aligned with the mission of ACM SIGGRAPH. Promotes awareness of the specialized conferences and the resulting archival content to the broader community and works to improve the integration of the specialized conferences with other SIGGRAPH events. Together with the External Relations Committee, the SCC works to strengthen existing ties and

identify new venues, emerging themes, or potential relationships with other conferences and organizations to broaden the scope of SIGGRAPH.

*Accomplishments:*

* Coordinated the approval of PAF and TMRF of over two dozen supported or in-cooperation events.
* Added CSCS 2019 (Computer Science in Cars) as a 100% sponsored event – to be co-sponsored with SIGAI in 2020.
* Worked with External Relations to renew the ACM/SIGGRAPH IEEE/vgTC MoU.
* Joaquim Jorge personally co-chaired Expressive 2019 and VRCAI 2019 co-located with SIGGRAPH Asia, the most profitable specialized event sponsored by SIGGRAPH, at a 15K USD surplus.
* In FY2020, the Specialized Conference Committee approved six sponsored conferences, as well as six co-sponsored conferences and over a dozen in-cooperation.

*Goals:*

* Paul Kry will be taking over as SCC Chair in September 2020.

## Student Services Committee

Chair: Corinne Price

*Mission:*

The S3 committee, in their role as the Early Career Development Committee, continued to bring additional year-round value to ACM SIGGRAPH student members and emerging professionals. S3’s mission is to plan, develop, and facilitate activities that assist with integration into the larger SIGGRAPH community and enhance career development. Emerging professionals are defined as undergraduate and graduate students, as well as, those within the first three years of graduation.

S3 also provides continuity and institutional memory for the student volunteer and intern programs at SIGGRAPH North America and SIGGRAPH Asia and collaborates with other SIGGRAPH entities (conferences, chapters, committees, etc.) on issues that affect student and emerging professional members. S3 has four key programs - resume and reel reviews known as S3R3, mentoring for ACM SIGGRAPH student members known as MentorMe, XSV, and a series of webinars and talks.

*Accomplishments:*

General Updates

* Responded to the COVID-19 pandemic by offering additional programming and establishing a close working relationship with the SIGGRAPH 2020 Student Volunteer Committee (SVSC) and other EC committees.
* In the process of revamping the S3 website to include increased resources, additional social media, and updated branding.
* Establishing a Discord channel with rules and guidelines to facilitate

cross-communication for students and emerging professionals; coordinated with the SIGGRAPH 2020 SVSC and Student Chapters leadership to ensure the proper channels were established for their group.

S3 Resume and Reel Reviews (S3R3)

* Overview:
* Conduct reviews four times per year – on-site at the SIGGRAPH 2019 and SIGGRAPH Asia 2019 conferences, as well as two virtual sessions in the Winter and Spring.
	+ Students receive feedback on their demo and resume by one of our Industry Professional Reviewers on a one to one basis; students are matched based on their desired work field and job skills. In return for their support, Industry Professional reviewers are gifted a conference mug and an “S3 Mentor” and/or “S3R3 Reviewer” ribbon, as well as, provided water and candy in the review room.
* A number of reviews completed:
	+ Completed 84 reviews onsite at SIGGRAPH 2019 (Summer 2019) – 75 unique reviews; 33 reviewers; filled up fastest review is Art & Animation and most requested is 3D Modeling/Generalist. The majority of reviews were not for Student Volunteers. Due to signage outside of the room, there were a lot of walk-in requests from student attendees. Signage was requested from Conference Management with room use, as well as review date and times.
	+ Completed 36 reviews onsite at SIGGRAPH Asia 2019 (Fall 2019); identified space at the back of the room and worked around student schedules. More technical reviewers would increase the number of reviews that could be performed onsite.
	+ Completed 13 reviews online during Winter 2020
	+ Completed reviews for 67 students and emerging professionals online during Spring 2020; signed-up 40 reviewers, which included new reviewers via Pioneers channels

MentorMe

* Overview:
* Mentor pairing cohort lasts 6-8 weeks starting at the annual SIGGRAPH conference and extending through the Fall semester
	+ Conducted online through email correspondence and teleconferencing
	+ Students are matched based on their desired work field and job skills
* A number of reviews completed:
	+ 41 pairings in Summer 2019

XSV Program

* SIGGRAPH 2019 Execution
* Hosted 15 XSVs – 13 within SIGGRAPH venue committees and 2 with Executive Committees

o Three XSVs were unable to attend the conference – two due to financial reasons and one due to a medical emergency; however, all three volunteered with their committees throughout the Spring

* Provided a $500 travel stipend, which was utilized by eleven of the XSVs
* SIGGRAPH 2019 Overview
* XSV application included three rolling deadlines - November 20, January 22, May 27 - to address the delay in application submission experienced with the longer submission period
* Received 27 XSV applications and 10 project proposals for 15 XSVs (all conference-specific)
* Due to COVID-19 progression throughout January and February, XSV pairing was delayed and ultimately halted until a decision regarding the SIGGRAPH 2020 conference.
* As the SIGGRAPH 2020 conference moved virtual, XSV pairings and decisions awaited notification regarding volunteer needs. The team followed up with applicants and project proposal submissions.

SIGGRAPH Asia 2019

* Benny Garcia, Corinne Price, Michael Collins, and Ginger Tontaveetong attended SIGGRAPH Asia 2019 in Brisbane, Australia to facilitate the S3R3 program at the conference. They were also able to assist with the SV program on-site and continue to publicize S3 programming.

o Presented an overview of the S3 program to SIGGRAPH Asia 2019 Student Volunteers, Team Leaders, and SVSC. Met with individuals on how to get involved with ACM SIGGRAPH and the North American SIGGRAPH Conference.

* Webinars and Other Activities

o Hosted 2 webinars, Creature FX Reel Tips and Tricks (10/11/2019), and Developing Your Concept Reel – Environments (2/20/2020). Both had low attendance but were recorded and are in post-production to be added to the SIGGRAPH YouTube channel and ultimately the revised S3 website.

*Goals:*

* Continue to build out virtual programming and engage with the SIGGRAPH 2020 virtual conference format.
* Host additional webinars and coordinate with SIGGRAPH Conference SVSC and ACM SIGGRAPH Diversity & Inclusion Committee; current desire for S3 to host 1 webinar per month.
* Build out a Discord server to better collaborate with all students and SIGGRAPH Student Chapters; different channels in Discord will allow us to engage with the membership across the various groups.
* Source additional S3R3 Reviewer and MentorMe Mentors using Pioneers, Diversity & Inclusion, and Educators listservs. Update the MailChimp account (or another method) to collect information for new reviewers and/or interested students and emerging professionals and build out a resource database.
* Expand the MentorMe program twice per year.

# Advisory Boards

## Computer Animation Festival Advisory Board (CAFAB):

Chair: Jason R.M. Smith

*Mission:*

The Computer Animation Festival Advisory Board was established to provide a long term vision to the CAF whilst promoting the SIGGRAPH Organization and Conferences through the international Traveling Show.

*Accomplishments:*

During 2019 the Computer Animation Festival Advisory Board achieved conference level buy-in on the Computer Animation Festival Awards Policies, providing value to incoming CAF Chairs and consistency across both conferences. Whilst conferences worldwide switched formats due to COVID, the CAFAB Strategic Projects team worked with the External Partnerships team to identify a shortlist of future pillar partners to drive strategic Traveling Show growth. The group also lined up a potential software partner for Digital Distribution and continue to target a digitally distributed Traveling Show for NA2021.

*Goals:*

Partnerships and distribution remain priorities for 2020-21 and will be re-evaluated to support long-term COVID related changes for SIGGRAPH and partner conferences once the impact is understood.

## Art Advisory Group (AAG):

Chair: Victoria Szabo

*Mission:*

SIGGRAPH ART ADVISORY GROUP (AAG) was established in the spring of 2019 to ensure that Art Gallery and Art Papers continue to be valued conference programs serving the artist community and beyond. This newly launched group provides counsel to the Conference Advisory Group (CAG) and SIGGRAPH Asia Conference Advisory Group (SACAG), as needed, on multi-year, cross-conference issues affecting the Art Gallery and Papers community. AAG currently has 11 members (Chair & Exofficio members). Ex-officio members are N-1, N, and N+1 art Gallery and Papers chairs for SIGGRAPH, SIGGRAPH ASIA, and the current chair of

the ACM SIGGRAPH Digital Arts Community(DAC). We also appointed the Presidents of ISEA and the New Media Caucus.

*Accomplishments:*

AAG assembled a document with general suggestions for the structure of Art jury meetings and developed a list of contributors who can participate in future Art activities. Our primary activity in 2019-20 has been to develop an alternative to the existing Leonardo contract for Art Papers and Art Gallery documentation. We have developed an initial agreement to create a special issue of the Computer Graphics and Interactive Techniques PACM devoted to Art Papers, and are exploring options for documenting the Art Gallery, which may include a section in the CGIT special issue, or, failing that, a separate online publication that will serve as an Art Gallery catalog. We are also working closely with the Arts chairs to think about longer-term arts exhibition and documentation, especially in light of the COVID-19 crisis and increasingly move towards virtualization.

*Goals:*

Our goals for the upcoming year are to complete the plans for the post-Leonardo art publications, to develop pipelines for multimodal Arts documentation looking ahead, and to coordinate with the Digital Arts Community standing committee around possible platforms for virtual and online art exhibitions and events. We will draw from the AAG expertise to help shape plans for these venues as well as to assess the S2020 virtual conference to determine best practices and plans for both conference-related and year-round activities in these areas at both SNA and SA.

## Papers Advisory Group (PAG):

Chair: Holly Rushmeier

*Mission:*

The full PAG's mission is to represent the institutional memory of the Papers program, to support the Papers Chairs, and to provide continuity and communication among the Papers Chairs. The PAG's appointed members have the following additional responsibility of recommending and vetting Papers Chairs to the SIGGRAPH and SIGGRAPH Asia Conference Chairs

*Accomplishments:*

The PAG provided lists of recommended Papers Chair candidates for SIGGRAPH Asia and SIGGRAPH. The board also responded to various inquiries from the current Papers Chairs on matters of policy and difficult situations.

*Goals:*

Same activities with the new committee chair, George Drettakis (to start July 1, 2020.)

# Key Challenges facing ACM SIGGRAPH:

Over the past four years, we have worked to design and implement a five-year strategy for the organization and conferences. An ongoing challenge is ensuring that all involved groups are aligned with the five-year strategy. Significant budget cuts were required in the revised organization budget that was submitted to ACM after the in-person SIGGRAPH 2020 was canceled. Those reductions necessitated the cancellation or dramatic reduction of many of the strategic efforts within the EC which will present a challenge in the implementation of our

five-year strategy and the ongoing support of our community during these difficult times. Given expected losses still to come in 2021, rebooting those efforts will require additional work on the part of volunteers as contractor support will be too expensive.

Volunteer development is a critical issue for all aspects of the organization. Much more needs to be done to ensure a robust and diverse volunteer base. Volunteer jobs tend to grow in the number of hours required without bound and we turn to the same volunteers repeatedly. This need for volunteer assistance will increase given the financial situation.

Our membership is under stress because of the ramifications of working from home across all of our industries. The impact of the virus on the entertainment industry is particularly severe given that much of the content was intended to be viewed by crowds and production on movie sets has been halted. We are working to increase the support that we provide for members in terms of education and mentoring via year-round activities. We have recruited new standing committee chairs to work in student services, lifelong learning, and career development for practitioners and are continuing to look for a chair for career development for researchers.

Taking SIGGRAPH 2020 virtual had at least one positive side effect – a much higher percentage of the content was captured in video form and will now be available from siggraph.org and the ACM Digital Library. SIGGRAPH Asia will be similarly represented which has not been the case in the past.

# Appendix:

*Chair groupings with EC reps:*

*Career Development: Jessica Hodgins (temporarily)*

Early Career Development (formerly S3) – Corinne Price Research CD -- unfilled

Practitioner CD -- unfilled Lifelong Learning -- unfilled

Professional Development -- unfilled

*Online Communities: Paul Strauss* Communications – Evan Hirsch History – Mary Whitton

Information Technology Services – Aaron Hosier Publications – Stephen Spencer

*Focused Communities: Brian Wyvill* Digital Arts – Victoria Szabo D&I – Tony Baylis Education – Ginger Alford

Interactive and Immersive Experiences – Mark Billinghurst International Resources – June Kim

Chapters – A.J. Christensen

*External: Mashhuda Glencross*

External Relations – Diana Arellano Specialized Conferences – Joaquim Jorge

*Chair's Grouping: (Jessica Hodgins as President and then the Chair going forward)*

Awards -- John (Spike) Hughes Nominations – Rebecca Strzelec

**SIGACT Annual Report**

**July 2019 – June 2020**

**Submitted by: Samir Khuller, Chair**

**SIGACT Mission Statement:**

The primary mission of ACM SIGACT (Association for Computing Machinery Special

Interest Group on Algorithms and Computation Theory) is to foster and promote the

discovery and dissemination of high quality research in the domain of theoretical computer

science. The field of theoretical computer science is interpreted broadly so as to include

algorithms, data structures, complexity theory, distributed computation, parallel

computation, VLSI, machine learning, computational biology, computational geometry,

information theory, cryptography, quantum computation, computational number theory and

algebra, program semantics and verification, automata theory, and the study of randomness.

Work in this field is often distinguished by its emphasis on mathematical technique and

rigor.

**1. Awards**

▪ 2020 Gödel Prize: This was awarded to **Robin A. Moser and Gábor Tardos** for

their paper “A constructive proof of the general Lovász Local Lemma”, Journal of

the ACM, Vol 57 (2), 2010. The Lovász Local Lemma (LLL) is a fundamental tool

of the probabilistic method. It enables one to show the existence of certain objects

even though they occur with exponentially small probability. The original proof

was not algorithmic, and subsequent algorithmic versions had significant losses in

parameters. This paper provides a simple, powerful algorithmic paradigm that

converts almost all known applications of the LLL into randomized algorithms

matching the bounds of the existence proof. The paper further gives a derandomized

algorithm, a parallel algorithm, and an extension to the “lopsided” LLL. The new

algorithmic paradigm involves resampling variables that cause bad events. Such

resampling was subsequently used in numerous other papers, including ones that

don't directly relate to the LLL. Moreover, the paper provides an elegant proof of

correctness involving witness trees. Witness trees have been influential well beyond

the LLL, inspiring the “entropy compression” method in combinatorics. Overall, the

paper's power and simplicity make it a far-reaching achievement.

▪ 2020 Knuth Prize: The 2020 Donald E. Knuth Prize was awarded to **Cynthia**

**Dwork** of Harvard University. Dwork is one of the most influential theoretical

computer scientists of her generation. Her research has transformed several fields,

most notably distributed systems, cryptography, and data privacy, and her current

work promises to add fairness in algorithmic decision making to the list. She is

widely known for the introduction and development of differential privacy, and for

her work on nonmalleability, lattice-based encryption, concurrent composition, and

proofs of work. She also did foundational work in many other areas including in

distributed systems with her work on consensus, and in algorithmic fairness with

her work on the formalization of the “treat like alike” principle. A striking feature

of Dwork’s work is her willingness and ability to tackle big, important problems.

Two examples stand out: her work on cryptography in a network environment, and

her work on privacy. Dwork and her collaborators recognized that the formalisms

existing at the time could potentially fail spectacularly in the real world, where

protocols run in a dynamic, asynchronous and widely spread network. They studied

a number of abstract settings that, they felt, captured some important aspects of the

large and daunting problem they had identified. Their work’s significance was not

fully understood at first, but Dwork and her collaborators persevered, and these

basic settings have come to play a central role in modern cryptography. For

example, nonmalleability (STOC 91, SICOMP 00, SIAM Review 03) and

concurrent composition (STOC 98, JACM 04) of proof systems play a critical role

in both the modeling and the construction of secure multiparty computation

protocols. Dwork’s identification of these models and concrete protocols that satisfy

their requirements have led to a huge body of work on more general notions of

composition and network security. The now gold-standard definition of security for

public-key encryption (indistinguishability under adaptive chosen-ciphertext

attacks) was first shown to be achievable in Dwork’s seminal paper on

nonmalleability (STOC 91). Lattice-based cryptography (STOC 97) forms the basis

of recent progress in homomorphic encryption, functional encryption and program

obfuscation. Lattice-based cryptosystems are also the main candidates for publickey

encryption secure against attacks by quantum computers. Dwork’s work

provided the first public-key cryptosystem whose security was based on the worstcase

hardness of a natural lattice problem. The second example of Dwork’s ability

to tackle big problems is her work on private data analysis. Consider a data curator

that collects and stores sensitive data about individuals, the curator could be a

government agency (such as the IRS), a clinical research group, a sociologist, or a

company such as Google or Facebook. How can the curator publish (either publicly

or internally) salient information about the data without compromising the privacy

of individuals in the data set? This problem is critical for obvious ethical and legal

reasons and, more subtly, because the curator requires participants’ trust in order to

collect accurate data. The problem has been studied in the statistics literature since

the 1960s and in the database literature since the 1980s. However, in the early

2000s, there was still no coherent definition of what privacy should mean in this

context, only intuitive requirements that individual information not be revealed.

Inspired by a paper by Irit Dinur and Kobbi Nissim, Dwork began to investigate

how one could precisely pin down privacy in statistical databases. Over the ensuing

decade, Dwork led the development of an entire scientific field at the intersection of

computer science, statistics, economics, law and ethics. Her work produced a deep

theory of private data analysis as well as techniques that have changed how

companies, government agencies and hospitals collect and process data. Differential

privacy has profoundly influenced the science of data privacy, providing a firm

theoretical basis as well as a standard to which other approaches are compared. This

influence extends beyond technical disciplines to legal and policy discussions,

where differential privacy has been used to formulate a natural-language standard

on which specific rules can be based. Differentially private algorithms are now

implemented at the US Census Bureau, which plans to make the public releases

from the 2020 decennial census differentially private. Google, Apple, and Microsoft

already have deployed systems for collecting sensitive usage information while

ensuring differential privacy, and a number of other companies (LinkedIn,

Facebook, Uber) are testing systems for sharing aggregate information that is

differentially private. Drawing on tools from learning theory, complexity and

algorithms, Dwork developed techniques for differentially private analysis of data

sets in a variety of domains. The ideas we highlight above are only a sample of

Dwork’s sustained record of contributions to theoretical computer science over the

past four decades. The success of the ideas mentioned here is due to large, vibrant

communities of scientists. Dwork has played a special role in these communities,

leading both through her technical work and by creating opportunities for the

communities to develop (for example, through advocacy efforts, organizing multidisciplinary

workshops, founding journals, and chairing conferences). Modern

theoretical computer science would look very different without her involvement.

Dwork has also played a remarkable role in mentoring young researchers and

nurturing their talent. To name only a few: Shuchi Chawla, Katrina Ligett, Ilya

Mironov, Kobbi Nissim, Omer Reingold, Aaron Roth, Guy Rothblum, Amit Sahai,

Adam Smith, Kunal Talwar. Any one of these researchers can speak to the

enormous influence Dwork’s mentorship had on them and their careers. Overall,

Dwork is an outstanding Computer Scientist who richly deserves the 2020 Knuth

prize.

▪ 2019 ACM Paris Kanellakis Theory and Practice Award: **Noga Alon, Philip**

**Gibbons, Yossi Matias** and **Mario Szegedy** have been awarded the Kanellakis

Theory and Practice Award for 2019. Alon, Gibbons, Matias and Szegedy

pioneered a framework for algorithmic treatment of streaming massive datasets.

Today, their sketching and streaming algorithms remain the core approach for

streaming big data and constitute an entire subarea of the field of algorithms.

Additionally, the concepts of sketches and synopses that they introduced are now

routinely used in a variety of data analysis tasks in databases, network monitoring,

usage analytics in Internet products, natural language processing and machine

learning. In their seminal paper, “The Space Complexity of Approximating the

Frequency Moments,” Alon, Matias and Szegedy laid the foundations of the

analysis of data streams using limited memory. Follow-up papers, including

“Tracking Join and Self-join Sizes in Limited Storage,” by Alon, Gibbons, Matias,

and Szegedy, and “New Sampling-Based Summary Statistics for Improving

Approximate Query Answers,” by Gibbons and Matias, expanded on the idea of

data synopses and were instrumental in the development of the burgeoning fields of

streaming and sketching algorithms. This work has been applied to query planning

and processing in databases and the design of small synopses to monitor vast

quantities of data generated in networks.

▪ 2020 ACM-EATCS Edsger W. Dijkstra Prize in Distributed Computing: “Computation

in networks of passively mobile finite-state sensors”, by **Dana Angluin, James**

**Aspnes, Zoe Diamadi, Michael J. Fischer, and Rene Peralta,** Distributed Computing

18(4): 235-253 (2006) was selected as the winner of the 2020 ACM-EATCS Dijkstra

Prize in Distributed Computing. The Edsger W. Dijkstra Prize in Distributed

Computing is named for Edsger Wybe Dijkstra (1930-2002), a pioneer in the area of

distributed computing. His seminal works on concurrency primitives (such as

semaphores), concurrency problems (such as mutual exclusion and deadlock), finding

shortest paths in graphs, fault-tolerance, and self-stabilization are important foundations

upon which the field of distributed computing is built.

▪ 2020 SIGACT Distinguished Service Award: The 2020 SIGACT Distinguished

Service Award was presented to **Dieter van Melkebeek** for his leadership in creating

the Computational Complexity Foundation (CCF) and transitioning the annual

Computational Complexity Conference to be run under the auspices of the CCF. This

new model benefits the research community in multiple ways, including open-access

publication of the conference proceedings and reduced conference costs, while

maintaining the prestige of this core theory conference. CCF has demonstrated financial

stability and exemplary transparency. It enjoys broad support within the community

and serves as a model that may be emulated in CS Theory and beyond. CCF has the

potential to take up other issues of interest to the theory community; as an example, it

has already taken over the guardianship of the popular Electronic Colloquium on

Computational Complexity (ECCC) preprint service. The well-reasoned and smoothly

executed transition realized a long-voiced desire of the community to become

independent. In the face of the formidable legal, financial, and logistical challenges

involved in the transition, it took an extraordinary leader to turn this desire into

reality. Dieter's vision, determination, thoughtfulness, careful planning, attention to

detail, and singular dedication made this transition an unqualified success.

In addition, SIGACT has standardized the deadlines for nominations of awards.

**2. Significant papers on new areas published in proceedings**

Below we highlight some of the “Best Paper” award winners from two SIGACT sponsored

conferences.

**STOC 2020**

The ACM Symposium on Theory of Computing covers much of computer science theory.

Ryan Alweiss, Shachar Lovett, Kewen Wu, and Jiapeng Zhang, in their paper “Improved

Bounds for the Sunflower Lemma,” which won the Best Paper Award, made progress

toward resolving one of the most famous remaining open problems posed by the great

Hungarian mathematician Paul Erdös. In combinatorics, a *sunflower* is a collection of sets

whose pairwise intersections are all equal. Erdös and Rado in 1960 pioneered the study of

upper bounds on the size of sunflower-free set systems, a topic whose applications include

lower bounds for monotone circuits. They famously conjectured an exponential upper

bound on the number of sets in a sunflower-free collection of *k*-element sets. The paper of

Alweiss et al. takes a giant step toward resolving this conjecture.

The Danny Lewin Best Student Paper award at STOC 2020 was given to Siddharth

Bhandari and Sayantan Chakraborty for their paper entitled “Improved bounds for perfect

sampling of *k*-colorings in graphs.” The paper presents a new algorithm for generating a

uniformly-random sample from the set of proper *k*-colorings of a finite graph in (expected)

polynomial time, provided that the number of colors is greater than three times the

maximum degree of the graph. Previously, polynomial-time perfect sampling algorithms

were only known to exist when the number of colors was much larger — roughly the

square of the maximum degree.

**SODA 2020**

ACM-SIAM Symposium on Discrete Algorithms is a major conference that focuses on

algorithms and combinatorics.

The Best Paper Award at SODA 2020 was given jointly to “Chasing Convex Bodies

Optimally”, by Mark Sellke, and “Chasing Convex Bodies with Linear Competitive Ratio”

by C.J. Argue, Anupam Gupta, Guru Guruganesh, and Ziye Tang. Sellke’s paper also won

the Best Student Paper Award at the conference. The two papers resolved a long-standing

open question in the theory of online algorithms posed by Friedman and Linial in 1991,

involving the design of algorithms that select a sequence in points in high-dimensional

space in response to queries that require each point new point in the sequence of belong to

a specific convex body. The closely related problem of “convex function chasing” (also

solved in Sellke’s paper) has been shown to have applications to efficiently powering

datacenters.

**3. Significant programs that provided a springboard for further**

**technical efforts**

SIGACT sponsored or co-sponsored a number of important conferences including the

Symposium on Theory of Computing (STOC), Symposium on Principles of Distributed

Computing (PODC), Symposium on Parallel Algorithms and Architectures (SPAA), and

Symposium on Discrete Algorithms (SODA).

SIGACT also supports several conferences in-cooperation including Symposium on

Principles of Database Systems (PODS), Symposium on Foundations of Computer Science

(FOCS), and Symposium on Principles of Programming Languages (POPL).

SIGACT helped support the creation of Algorithmic Principles of Computer Systems

(APOCS) a conference co-located with the ACM-SIAM SODA Conference in Jan 2020

and also supported “Papa Fest” a celebration of Christos Papadimitriou’s 70th birthday at

Columbia University in New York, to celebrate his many contributions to TCS.

SIGACT is planning on launching a test of time award like FOCS has done recently. We

expect this to be announced shortly, with the first award being given in 2021.

**4. Innovative programs which provide service to our technical**

**community**

The Committee for the Advancement of Theoretical Computer Science (CATCS),

sponsored by SIGACT, continues to be very active. The committee meets by conference

call every month and has developed and executed action plans to increase the visibility of

theoretical computer science and to increase the funding base for theory of computation at

the NSF. The Committee has helped advise the NSF CCF Director and other NSF officers

on several matters including recruiting for positions within. The committee has also been

working to obtain a more detailed and complete picture of the state of academic

employment in theoretical computer science within the broad range of US research

universities. Having Shuchi Chawla be the chair of CATCS, and be on the SIGACT EC has

resulted in a close co-operation between the two groups.

SIGACT continues to support student attendance at SODA and STOC by funding Best

Student Paper Awards, travel, lunches, and reduced registration fees. SIGACT has also

provided additional student support for all of its other sponsored and co-sponsored

conferences this year. This helps ensure that the maximum number of students can attend

these conferences.

The second TCS Visioning workshop was organized by the SIGACT Committee for the

Advancement of Theoretical Computer Science and took place during the week of July 20,

2020. The workshop was held online and involved over 75 participants from the United

States, Europe, and Asia. The main goal of the workshop was to identify broad research

themes within theoretical computer science that have potential for a major impact in the

future. These themes were then packaged into research nuggets in a way that can be

consumed by the general public. A workshop report in the form of a white paper

accompanied with graphics/posters produced by a professional graphic designer will be

released publicly within a few months. These will then be delivered primarily to the

Computing Community Consortium (CCC) and funding agencies such as the National

Science Foundation (NSF) to help them advocate for TCS.

SIGACT has co-sponsored the SIGACT CRA-W Grad Cohort Workshop, the Women in

Theory Workshop as well as the TCS women’s spotlight workshop at STOC, featuring

both an inspiring senior researcher as well as post-docs and senior graduate students.

**5. Significant new initiatives**

The major conference run through SIGACT is the Symposium on Theory of Computing

(STOC). Due to the situation with COVID-19, STOC in Chicago was basically converted

into a fully online conference. We wanted to thank the local arrangements team – Madhur

Tulsiani (local arrangements chair), Yury and Kostya Makarychev and Gautam Kamath –

for putting the online conference together. Julia Chuzhoy was the PC chair for STOC, and

Tim Roughgarden was the Theory Fest Chair - and they all worked tirelessly to ensure that

attendees had a great experience. The full length talk videos were made available before the

conference, and each paper was given a 10 minute slot during the conference to summarize

their work. This enabled a late morning start and a finish by late afternoon to attempt to

cater to people from the US West coast to Europe. We were not sure how to best cater to

attendees from the Far East and Australia. A post survey of STOC attendees definitely

suggests that with some frequency the conference needs to be held virtually increasing

participation – we had participants from many countries this time. The attendance at STOC

doubled and was over 700. In addition, to the conference talks, there were workshops as

well as a reception held on gather.town. From the post-STOC survey it does appear that

there is significant support for an online conference.

Challenges to this approach are that it requires a great deal more volunteer effort and

organization. We have aimed to keep registration fees low, but in future years this may

require increases in registrations costs for the conference to maintain financial stability.

**6. Summary of key issues that the membership of the SIGACT**

**will have to deal with in the next 2-3 years**

Funding and articulating the importance of theoretical computer science are perennial

issues that are being addressed by the Committee for the Advancement of Theoretical

Computer Science (CATCS) in conjunction with SIGACT. We have effectively

fundraised to increase the Knuth prize from $5,000 to $10,000 thanks to a private donor

(for three years). We might have to fund raise additional funds for future years. The

SIGACT Service Award was increased from $1,000 to $3,000.

Membership in SIGACT has been flat. Since generally there are minimal specific benefits

for SIGACT membership after joining the ACM, this is perhaps not surprising. We also

need to think about ways to simply offer a lifetime membership.

SIGACT needs to do more to support programs and events to have a broader reach to

historically under-represented groups. We strongly suggest that the next SIGACT EC

prioritize this issue.

Another key issue relates to open access. By and large, the community is deeply

supportive of open access and is encouraged by recent efforts by the ACM to make

conference papers more readily and freely accessible. A natural consequence of this may

be decreased funding for SIGACT through the ACM Digital Library program, which

provides the bulk of our discretionary budget. At this stage we are making SIGACT News

freely available on the SIGACT website.

1. **Volunteer Development Process**

SIGACT now has a number of sub committees working to improve diversity in TCS, by

running the STOC Theory Women Workshop (Barna Saha, Sofya Raskhodnikova and

Virginia Vassilevska Williams) and as well as a sub-committee to identify top new papers

for coverage in CACM (Research Highlights) consisting of Aleksander Madry (chair), Irit

Dinur, Boaz Barak and Jelani Nelson. We hope to recruit more volunteers for other

activities. Amit Sahai has kindly taken on the role of co-ordinating awards. We do need a

sub-committee to solicit for conference locations for STOC. Right now this is handled by

the SIGACT EC.

Award committees for the Knuth prize, Gödel prize and SIGACT Distinguished Service

Award also evolve and change every year with new members being added and members

rotating out. This year the award committees for the SIGACT Distinguished Service Award

were Laszlo Babai (chair), Alistair Sinclair and Rebecca Wright. The Knuth prize award

committee was Alan Frieze (chair), Hal Gabow, Noam Nisan, Ronitt Rubinfeld, Eva

Tardos and Andrew Yao. The Gödel prize committee was Samson Abramsky, Anuj Dawar

(chair), Joan Feigenbaum, Robert Krauthgamer, Dan Spielman and David Zuckerman.

The PC chair for 2021 STOC will be Virginia Vassilevska Williams and the PC chair for

2022 STOC will be Anupam Gupta.

**SIGHPC FY’20 Annual Report**

**01 July 2019 - 30 June 2020**

**Submitted by: John West, SIGHPC Chair on behalf of the SIGHPC Executive Committee**

**Awards**

During this reporting period, the SIG conferred the period are the SIGHPC Outstanding Doctoral Dissertation Award and the SIGHPC Emerging Woman Leader in Technical Computing Award. SIGHPC's conferences present other awards and recognition (such as the annual SC Test of Time Award, the Gordon Bell Award, and so on) that are not included here.

The Outstanding Doctoral Dissertation Award is given each year for the best doctoral dissertation completed in high performance computing (HPC) in the previous year, and includes a $2,000 cash prize, a plaque, and recognition at SC20 in November. Nominations were evaluated on technical merit, the significance of the research contribution, the potential impact on theory and practice, and overall quality of work. This year’s award is presented to Dr. Patrick Flick (Georgia Tech) for outstanding contributions to the design and analysis of parallel string algorithms on distributed memory parallel computers, with applications to computational biology. Dr. Bo Fang (University of British Columbia) was selected for Honorable Mention in the 2020 Dissertation Award.

The SIGHPC Emerging Woman Leader in Technical Computing Award is a biennial award open to any woman who has engaged in HPC and technical computing research, education, and/or practice for 5-15 years since receiving her highest degree. This international award creates a new career milestone achievement, and also establishes a cohort of role models for students and professional who are just getting started in our field. The awardee is recognized with a $2,000 cash prize, a plaque, and travel support to SC. Trilce Estrada is the 2019 ACM SIGHPC Emerging Woman Leader in Technical Computing award winner. Dr. Estrada is an associate professor in the department of Computer Science at the University of New Mexico. She is recognized “for her innovative and transformative deployment of machine learning for knowledge discovery in molecular dynamic simulations and in situ analytics.”

**Significant papers on new areas that were published in proceedings**

The SIG sponsors several conferences that offer best paper recognition; this year's technical paper highlights are selected from those events which recognize current state of the art.

The Gordon Bell Prize is awarded each year to recognize outstanding achievement in high-performance computing; it is awarded by ACM and presented at the annual SC conference. The technical papers that accompany the finalists' submissions are important in the HPC community as demonstrations of what it possible and a record of state-of-the-art practice. Both finalist papers are worthy of mention:

A Data-Centric Approach to Extreme-Scale Ab Initio Dissipative Quantum Transport Simulations (https://doi.org/10.1145/3295500.3357156)

Key Outcomes: presents an ab initio quantum transport (QT) solver reaching a sustained performance of 85.45 Pflop/s on 4,560 nodes of Summit.

Fast, Scalable and Accurate Finite-Element Based Ab Initio Calculations Using Mixed Precision Computing: 46 PFLOPS Simulation of a Metallic Dislocation System (https://doi.org/10.1145/3295500.3357157)

Key Outcomes: 46 PFLOPS on a dislocation system in magnesium containing 105,080 electrons using 3,800 GPU nodes of Summit.

The best professional paper at SC19 (Denver, CO, USA) is: “A Massively Parallel Infrastructure for Adaptive Multiscale Simulations: Modeling RAS Initiation Pathway for Cancer” (https://doi.org/10.1145/3295500.3356197), and the best student paper at that event was "Red-Blue Pebbling Revisited: Near Optimal Parallel Matrix Multiplication" (https://doi.org/10.1145/3295500.3356181).

The best paper at PASC 2020 (Zurich, Switzerland) is "Performance Evaluation of a Two-Dimensional Flood Model on Heterogeneous High-Performance Computing Architectures" (https://doi.org/10.1145/3394277.3401852).

The best paper at PPOPP 2020 (San Diego, CA, USA) is "Non-blocking interpolation search trees with doubly-logarithmic running time" (https://doi.org/10.1145/3332466.3374542).

Finally, the best student paper at PEARC20 is "Evaluation of Clustering Techniques for GPS Phenotyping Using Mobile Sensor Data" (https://doi.org/10.1145/3311790.3396665) and the best professional paper is "CyberAmbassadors: Results from Pilot Testing a New Professional Skills Curriculum" (https://doi.org/10.1145/3311790.3396619).

**Significant programs that provided a springboard for further technical efforts**

Replication and reproducibility of experimental computer science results is essential for peer reviewed, high-quality papers. Over the past years, aspects of replication and reproducibility have become more relevant in the HPC community. The SIG’s annual SC conference has been a pioneer in evaluating HPC applications in terms of their replicability.

Through our annual SC event we continue to lead the HPC community on efforts to improve the reproducibility of computational research. After three years of increasing momentum, the SC Reproducibility Initiative made Artifact Description (AD) Appendices mandatory for all papers submitted to the SC19 Technical Program. Artifact Evaluation (AE) Appendices were still optional. Three new Technical Program tracks, with their respective committees and chairs, are introduced in support of the SC Reproducibility Initiative.

Reproducibility has also been a focus of the Student Cluster Competition which is held each year at the annual SC conference. The competition was developed to immerse undergraduate and high school students in HPC. Student teams design and build small clusters with hardware and software provided by vendor partners. They learn designated scientific applications, apply optimization techniques for their chosen architectures, and compete in a non-stop, 48-hour challenge; the most recent event was held at SC19. Sixteen teams from around the world were chosen from 31 submissions to compete at SC19. During SC19 the student competitors reproduced a portion of the SC18 paper “Computing planetary interior normal modes with a highly parallel polynomial filtering eigensolver,”by J. Shi, et al. This exercise introduces students to cutting edge research in the HPC field and reinforces the scientific processes through the replication of computational experiments and reporting on those results. The results of the top teams’ experiment replication will be published in the IEEE Transactions on Parallel and Distributed Systems along with an analysis of the students work as a case study for how reproducibility can be accomplished in the supercomputing field.

**Innovative programs which provide service to some part of your technical community**

We believe that all of our efforts in awards, fellowships, and travel grants have some innovative elements in their implementation and work together to reinforce and amplify their impact on the HPC community. However the most significant program we have that directly addresses this element in the context of ACM and the SGB is our pioneering efforts in virtual chapters.

Our virtual chapters program provides a way for different sub-groups in our community to interact and share information. Virtual chapters are especially relevant in HPC because of the nature of our community: because of their costs, HPC centers are not densely distributed throughout anyone state or region. This results in a global HPC community that is highly distributed and in general not regionally connected, and so meetups and other community-oriented activities are not practical. There are a few locations where the local community is large enough to support a physical chapter, and volunteers are currently organizing chapters in China and in Tennessee (where ORNL and the university form a large hub for HPC practice and research). We hope to include more about those efforts as new chapters in the FY21 report.

NEW FOR FY20 SIGHPC ASCAN: this chapter promotes study of accelerated scalable computing and analytics.

SIGHPC BigData: this chapter promotes the convergence between HPC and BigData.

SIGHPC Education: this chapter targets aspects of teaching HPC, developing educational or training materials, and curriculum development.

SIGHPC-RCE: this chapter's mission is to promote the advancement of the field of High Performance Computing in Resource Constrained Environments (RCE).

SIGHPC SYSPROS: the Systems Professionals chapter supports the interests and needs of systems administrators, developers, engineers, and other professionals involved or interested in the operation and support of systems for high performance computing.

**Diversity and Inclusion**

Student travel grants help build the HPC workforce pipeline, and ensure that new voices can participate in our largest conferences. SIGHPC offers travel grants to its major sponsored events (note that we are working to partner with PPoPP to extend our grant program to that conference as well).

Four SIGHPC Travel Grants were awarded in early September for SC19, Denver, CO, USA. Two of these students were working on undergraduate degrees and two on PhDs. The grant consists of $600 for recipients from North American universities, or $1200 for travel from another continent, are available to students selected for the award. SC provides complimentary technical program registration for travel grant recipients.

At PASC (Zurich, Switzerland) SIGHPC supports one applicant traveling from within Europe and one applicant traveling from another continent. The student traveling from within Europe is awarded a maximum grant of $600, and a maximum allowance of $1200 is given to the selected student traveling from other continents. PASC also covers the corresponding registration fee for the two selected students.

The ACM SIGHPC/Intel Computational & Data Science Fellowships awarded its fifth class of fellows. Specifically targeted at women or students from racial/ethnic backgrounds that have not traditionally participated in the computing field, the program is open to students pursuing degrees at institutions anywhere in the world. To date we have supported a total of 39 fellowships to members of underrepresented groups in computational and data science, some with as long as 4 years of support. Awardees are given a $15,000 fellowship and recognized at the prestigious annual SC conference. The total five-year value of the program is $1.5M, and is funded with the generous financial support of Intel. Of the six students named as winners this year, all are women; four are underrepresented minorities in their country of study, and one is deaf. Fellows were recognized in the awards ceremony at SC19, with travel and conference support provided by the SIG.

The SIG continued its effort to spark interest among undergraduate in computing and HPC through its Computing4Change for program. Now in its second year as a full program, the event is a 5-day long student engagement experience hosted by the SIG at the annual SC conference designed to teach computation, data analysis, and visualization techniques in order to take a data centric view of a significant social issue. Objectives of the program include; 1) engaging students in a social action challenge utilizing advanced computing techniques, 2) increasing the participation of students historically underrepresented in STEM at SC conferences, and 3) creating a cohort of students to serve as future ambassadors at SC conferences. 68% of the 25 awardees this year identify as female, and 48% of awardees are first generation college students. Among awardees from the US, 32% are Latino/Hispanic, 12% are Black or African American, 8% are from the Pacific region including Hawai`i and Guam, and those remaining are White or Asian descent. To date this program has engaged over 100 students in computing and HPC.

**Key Issues**

The SIG will be challenged to increase value for non-US participants over the next several years, principally through relationships with workshops and conferences outside the US. There is some indication that this is improving, especially in China, where interest in a new chapter is high.

HPC, along with all of the computer science-related disciplines, suffers from a lack of diversity in its workforce. The SIG will continue its efforts to support groups that are under-represented in computing -- such as women, black and African Americans, Native Americans, and Hispanic and Latino groups -- through its fellowship, travel support, and award programs. However, we must carefully evaluate the impact of those programs and continue to experiment with new ways to address this critical need.

**SIGPLAN FY 2020 Annual Report.**

**July 2019 - June 2020.**

**Submitted by: Jens Palsberg, SIGPLAN Chair.**

SIGPLAN has four annual conferences that weigh equally as flagship conferences:

 - Int. Conf. on Functional Programming (ICFP),

 - Conf. on Programming Language Design and Implementation (PLDI),

 - Symp. on Principles of Programming Languages (POPL), and

 - Conf. on Systems, Programming, Languages, and Applications:

 Software for Humanity (SPLASH).

Additionally, SIGPLAN sponsors or co-sponsors eight other conferences. Each of the flagship conferences had an attendance of 500 people until the pandemic. After the pandemic began, PLDI 2020 had 4,000 people registered, while ICFP 2020 had 1,000 people registered. Part of the reason for the big difference in registration numbers

lies in that we made PLDI 2010 free, while we had a registration fee for ICFP 2020.

1. Awards

SIGPLAN gave the following awards:

- SIGPLAN Programming Achievement Award: Hans Boehm (Google).

- SIGPLAN Robin Milner Young Researcher Award: Eran Yahav (Technion).

- SIGPLAN Software Award: Pin, by Kim Hazelwood (Intel) and eight others.

- SIGPLAN Most Influential Paper awards to papers presented 10 years earlier:

 - ICFP 2009: "Runtime Support for Multicore Haskell",

 by Simon Marlow, Simon Peyton Jones, and Satnam Singh.

 - OOPSLA 2009: "Flapjax: a programming language for Ajax applications",

 by Leo Meyerovich and six others.

 - POPL 2010: "From program verification to program synthesis",

 by Saurabh Srivastava, Sumit Gulwani, and Jeffrey Foster.

 - PLDI 2010: "Green: A Framework for Supporting Energy-Conscious Programming

 using Controlled Approximation", by Woongki Baek and Trishul Chilimbi.

Additionally, SIGPLAN decided on who will receive an additional award; SIGPLAN will give that award in FY 2021.

2. Significant Papers

The following three papers, first presented at SIGPLAN conferences, appeared as CACM research highlights:

- "BLeak: automatically debugging memory leaks in web applications",

 by John Vilk and Emery Berger; CACM Research Highlight in Dec 2019;

 first presented at PLDI 2018.

- "MadMax: surviving out-of-gas conditions in Ethereum smart contracts",

 by Neville Grech and five others; CACM Research Highlight in Dec 2019;

 first presented at OOPSLA 2018.

- "BioScript: Programming Safe Chemistry on Laboratories-on-a-chip",

 by Jason Ott and four others; CACM Research Highlight in Dec 2019;

 first presented at OOPSLA 2018.

3. Significant Programs

SIGPLAN is committed to gold open access to papers in conferences that have joined Proceedings of the ACM on Programming Languages (PACM PL).

SIGPLAN has the agreement with Scott Delman that until July 2022, SIGPLAN pays

the per-paper fee of $400 for gold open access, unless authors pay themselves.

Until the pandemic, SIGPLAN provided $120,000 annually in travel grants,

which go mostly to students.

Additionally, SIGPLAN provided a total of $80,000 annually to support of the Programming Languages Mentoring Workshops. This money went to cover the travel costs of students. Also, SIGPLAN provided a total of $50,000 annually to support four summer schools. This money goes mostly to cover the travel costs of students. We are eager to return to fund those programs once we return to physical meetings.

The SIGPLAN communications director sends a monthly newsletter via email to every SIGPLAN member.

The newsletter contains information about upcoming SIGPLAN conferences and other activities that may be of interest to SIGPLAN members. Additionally, SIGPLAN has a presence on Facebook and Twitter.

The SIGPLAN blog is going well; the editor continues to be Michael Hicks, former SIGPLAN Chair (2015-2018). In FY 2020, some of the postings were on People of PL, that is, interviews with notable members of SIGPLAN.

Until the start of the pandemic, SIGPLAN had a permanent conference manager who was essential to the smooth organization of the flagship conferences and PLMWs. Around the start of the pandemic, the conference manager found other work and terminated the contract, and we realized that we have no need for a conference manager for a while.

4. Innovative Programs

In the days of physical conferences, SIGPLAN did video recording and live streaming of all the main tracks of the flagship conferences and we put the videos on youtube. After the pandemic began, we do something similar, except that now either the authors record the videos themselves, or we use zoom, or the like, to record live.

SIGPLAN has a committee on climate change, chaired by Benjamin Pierce (who is also the SIGPLAN Vice Chair). The committee advocated for ACM to have a carbon offset program, and eventually ACM introduced such a program in Feb 2019 and revised it in 2020. Additionally, the SIGPLAN committee authored a paper that appeared in CACM in March 2020. The paper advocates that every ACM-sponsored conference should publicly report its carbon footprint.

In the days of physical conferences, SIGPLAN's conferences had mentoring breakfasts. For example, the ones at POPL 2020 ran over three mornings and had a large room full of people each day. When we switched to virtual conferences, ICFP 2020 had an even larger mentorship program both for students and for faculty: we had almost 200 pairings of mentors and mentees.

5. Broadening Participation

SIGPLAN has a Programming Languages Mentoring Workshop (PLMW) co-located with every flagship conference so four PLMWs annually. Each PLMW has 30-40 attendees, which are a mix of undergraduate and graduate students. The goal of each workshop is to make the participants interested in pursuing more education in computer science in general and programming languages in particular.

CRA (CERP) surveys the participants, both right after each workshop and one year later; CRA sends SIGPLAN reports with the outcomes. SIGPLAN uses those reports to understand the impact of PLMW and

to raise funds from the National Science Foundation and industry.

SIGPLAN donates $15,000 annually to support the CRA-WP activities to increase participation of women in computer science.

The four flagship conferences use a variant of double-blind peer review to ensure fairness, particularly to under-represented groups.

Looking ahead to physical conferences, SIGPLAN has created a pool of travel funding for members of historically marginalized groups. An example of such a group is the faculty and students at Historically Black Colleges and Universities.

In January 2020, SIGPLAN started a CARES committee, patterned after the one in SIGARCH and SIGMICRO. The committee is a sounding board for anyone who experiences a violation of an ACM policy, such as discrimination harassment, or plagiarism.

6. Key Issues

SPLASH 2020, POPL 2021, PLDI 2021, and ICFP 2021 will all be virtual. We are discussing what to do with SPLASH 2021, POPL 2022, PLDI 2022, and ICFP 2022.

We have started discussion of the format of SIGPLAN conferences once the pandemic ends. For example, we might go for a mix of physical and virtual conferences.

**SIGKDD 2020 Annual Report**

July 1, 2019-June 30, 2020

Submitted by: Jian Pei, SIGKDD Chair (jpei@cs.sfu.ca)

SIGKDD Executive Committee consists of the following individuals:

Jian Pei, Simon Fraser University, Canada (Chair)

Deepak Agarwal, Pinterest, USA

Claudia Perlich, Two Sigma, USA

Johannes Gehrke, Microsoft, USA

Jure Leskovec, Stanford University, USA

Bing Liu, University of Illinois at Chicago, USA (Chairman)

Geoffrey I. Webb, Monash University

Mohammed J. Zaki, Rensselaer Polytechnic Institute, USA
Michael Zeller, Temasek, Singapore (Secretary/Treasurer)

**SIGKDD Mission**

To encourage basic research in KDD, adoption of standards in the market, and interdisciplinary education among KDD researchers, practitioners, and users.

**1. Awards**

SIGKDD continues its growth and stays strong and resilient at the challenging time of pandemic. The KDD 2019 conference attracted 3500 attendees to Anchorage, Alaska, USA.

**1.1. SIGKDD Awards**

SIGKDD presents three prestigious awards each year: Innovation Award, Service Award, and Distinguished Dissertation Award.

**ACM SIGKDD 2019 Innovation Award**

**Charu Aggarwal**, IBM T.J. Watson Research Center

**ACM SIGKDD 2015 Service Award**

**Balaji Krishnapuram**, IBM Watson Health

**ACM SIGKDD 2015 Distinguished Dissertation Award**

**Winner**

**Tim Althof** of Stanford University for his dissertation titled “Data Science for Human Well-Being”, advisor: Jure Leskovec

**Runner-up**

**Chao Zhang** of the University of Illinois at Urbana-Champaign for his dissertation titled “Multidimensional Mining of Unstructured Data with Limited Supervision”, advisor: Jiawei Han

**Honorablemention**

**Michael Yeh** of the University of California - Riverside for his dissertation titled “Towards a Near Universal Time Series Data Mining Tool: Introducing the Matrix Profile”, advisor: Eamonn Keogh

**1.2. 2019 KDD Test-of-Time Paper Awards**

KDD Test-of-Time awards honor papers published in a KDD conference at least 10 years ago that have made significant impact in research. KDD-2019’s award was given to the paper “Cost-effective Outbreak Detection in Networks” authored by Jure Leskovec, Andreas Krause, Carlos Guestrin, Christos Faloutsos, Jeanne VanBriesen and Natalie Glance, published in KDD 2007.

**1.3 2019 KDD Best Research Paper Awards**

These awards recognize best papers presented at the annual KDD conference that advance the fundamental understanding of the field of knowledge discovery in data and data mining.

**Best research track paper award**

Title: Network Density of States
Authors: Kun Dong (Cornell), Austin Benson (Cornell), and David Bindel (Cornell)

**Runner-up**

Title: Optimizing Impression Counts for Outdoor Advertising
Authors: Yipeng Zhang (RMIT University), Yuchen Li (Singapore Management University), Zhifeng Bao (RMIT University), Songsong Mo (Wuhan University), and Ping Zhang (Huawei)

Since the first authors of the above two papers were students, KDD 2019 did not give separate best student paper awards.

**1.3. 2019 KDD Best Applied Data ScienceTrack Paper Awards**

These awards recognize papers presented at the applied data science track of the annual KDD conference that advance the fundamental understanding and applications of knowledge discovery in data and data mining.

**Best ADS paper award**

Title: Actions Speak Louder Than Goals: Valuing Player Actions in Soccer
Authors: Tom Decroos (KU Leuven), Lotte Bransen (SciSports), Jan Van Haaren (SciSports), Jesse Davis (KU Leuven)

**Runner-up**

Title: Developing Measures of Cognitive Impairment in the Real World from Consumer-Grade Multimodal Sensor Streams
Authors: Richard Chen (Apple Inc.), Filip Jankovic (Evidation Health, Inc.), Nikki Marinsek (Evidation Health, Inc.), Luca Foschini (Evidation Health, Inc.), Lampros Kourtis (Evidation Health, Inc.), Alessio Signorini (Evidation Health, Inc.), Melissa Pugh (Eli Lilly and Company), Jie Shen (Eli Lilly and Company), Roy Yaari (Eli Lilly and Company), Vera Maljkovic (Eli Lilly and Company), Marc Sunga (Eli Lilly and Company), Han Hee Song (Apple Inc.), Hyun Joon Jung (Apple Inc.), Belle Tseng (Apple Inc.), Andrew Trister (Apple Inc.)

**2. KDD Community Impact Program**

In February 2020, SIGKDD announced a funding opportunity through its Community Impact Program. The data science community has expanded its reach dramatically over the past few years, and SIGKDD would like to direct its success towards a broader positive data science community impact.

The goal of the program is to support projects that promote data science and help the data science community to grow, broaden, and diversify. Maximum project duration is one year. Funded projects will be required to present results of their work and outcomes at the annual KDD conference.

The KDD Community Impact Program is looking to fund projects that have the potential for maximum impact on society and expand outreach of data science—thereby strengthening the community. Sample topics include but are not limited to:

* Enhance data science community engagement
* Expand outreach of data science
* Increase diversity, inclusion, and participation in data science
* Increase societal impact of data science
* Influence public policy and decision making through data science
* Support for data science schools to broaden participation
* Support for data science hackathons and summer schools

The KDD Impact Program is not a research program. It focuses on projects that benefit the community and society. Research projects of any kind will not be funded.

The KDD Community Impact Program intends to fund up to 10 projects with a funding range between $10k-$50k. All project costs must be fully justified. In exceptional cases, more funding may be allocated based on justification. Funding will be given as unrestricted funds (which usually means that minimal institutional overheads will be applied).

The call is open to participants who must be affiliated with a bona fide institution (university, non-profit organization, etc.). Funds are to be used for not-for-profit activities, and this program will not fund activities for which alternative funding is readily available.

The selection results were announced in August 2020.

**3. Summary for Issues to Deal with in Next 2-3 Years.**

SIGKDD does not any outstanding issues. We plan to do the following in the next 2-3 years.

* SIGKDD will extend the impact to a broader community of data scientists and practitioners through innovations in its conferences, its community impact program, and a new mentoring program in plan. SIGKDD will also explore new opportunities in publishing so that the SIGKDD publications can be further inclusive.
* SIGKDD will further expand its strong sponsorship program to connect sponsors and the SIGKDD community in a year-round, more committed manner. This will include possible podcasts, local meetup events, seminars, and workshops.

**SIGBIO Annual Report**

**July 2019 - June 2020**

**Submitted by: Srinivas Aluru, Chair**

*The ACM Special Interest Group on Bioinformatics, Computational Biology, and Biomedical Informatics (SIGBio) bridges computer science, mathematics, statistics with biology and biomedicine. The mission of ACM SIGBio is to improve our ability to develop advanced research, training, and outreach in Bioinformatics, Computational Biology, and Biomedical Informatics by stimulating interactions among researchers, educators and practitioners from related multi-disciplinary fields.*

**Membership Statistics:**

Professional: 208

Affiliate: 74

Student: 30

Total: 312

**Annual Community Meeting:**

The SIGBIO annual meeting was held in conjunction with the 10th ACM BCB conference in Niagara Falls, NY on Sunday, September 8, 2019 from 4-5:30 PM. The meeting was used to reach out to our general membership, present work carried out to date, seek volunteers to contribute to these and other efforts, and receive general community feedback to help shape future planning.

**Women in Bioinformatics Panel:**

SIGBIO sponsored the Women in Bioinformatics panel as a one and half hour boxed lunch event during the ACM BCB conference. The event is designed in a such a way as to attract the entire audience attending the conference. The panel discussed issues related to equality in access, opportunities, recognition, hiring, and professional advancement. In the future years, this will be expanded to Diversity and Inclusiveness Panel to also include issues related to underrepresented minorities.

**SIGBIO Flagship Conference (ACM BCB):**

The ACM International Conference on Bioinformatics, Computational Biology, and Health Informatics (ACM BCB) is the flagship conference for SIGBIO. The tenth edition of the conference (ACM BCB 2019) was held at the Niagara Falls Conference and Event Center in Niagara Falls, New York during September 7-10, 2019. The conference had 241 attendees.

The main program featured 42 peer-reviewed full research papers and 19 short research papers that appeared in the proceedings, selected from 157 original submissions. It also featured five highlights presentations of recently published high value work. The conference was preceded by the following seven international workshops:

1. Microbiomics, metagenomics, and metabolomics (MMM)
2. Computational network biology: Modeling, analysis, and control (CNB-MAC)
3. Computational structural bioinformatics (CSB)
4. Computational advances in molecular epidemiology (CAME)
5. Parallel and cloud-based bioinformatics (ParBio)
6. Machine learning models for multi-omics data integration (MODI)
7. Reproducibility and robustness in biological data analysis and integration (RROBIN)

Five of these workshops have continued from the previous year, and two new workshops were added in 2019 (MODI and RROBIN). The conference also featured seven tutorials, poster session, an industry session, demos and exhibits, NSF-sponsored student research forum, the SIGBIO Women in Bioinformatics panel, and a student networking and social event. As per current statistics, the published proceedings of the conference in the ACM Digital Library was downloaded 12,578 times in the past 12 months. Special issues of enhanced versions of top papers selected from the conference were published in the *ACM/IEEE Transactions on Computational Biology and Bioinformatics*, and the *IEEE Journal of Biomedical and Health Informatics*.

**Partnership with WABI:**

The Workshop on Algorithms in Bioinformatics (WABI), established in 2001, is a major annual international conference. It is a single track meeting that features high quality algorithmic work in bioinformatics and attracts about 60-75 attendees. In the past, the conference has completely shifted to Europe and held as part of the ALGO Conferences, primarily due to difficulty in identifying suitable organizers in the U.S. SIGBIO executed a partnership with WABI in 2015 to run WABI as part of the ACM BCB conference every alternate year. Essentially, the WABI program runs as one of the tracks of the ACM BCB conference in odd years. The 2019 ACM BCB conference marks the third such co-location.

**In-Cooperation Conferences:**

SIGBio was in cooperation with the following conference:

* BIOSTEC’20: 13th International Joint Conference on Biomedical Engineering Systems and Technologies, Valletta, Malta, February 24-26, 2020.

**SIGBIO Awards:**

These awards are given to the best paper and best student paper, respectively, as judged by the awards committee and selected from among the papers accepted for the ACM BCB conference. The 2019 awards were presented at the banquet event of the ACM BCB 2019 conference.

SIGBIO Best Paper Award:

Identifying Symptom Clusters in Breast Cancer and Colorectal Cancer Patients using EHR Data, by Priyanka Gandhi, Xiao Luo, Susan Storey, Zuoyi Zhang, Zhi Han, and Kun Huang

SIGBIO Best Student Paper Award:

Practical Universal k-mer Sets for Minimizer Schemes, by Dan DeBlasio, Fiyinfoluwa Gbosibo, Carl Kingsford and Guillaume Marçais

**NSF Awards:**

SIGBIO was awarded a National Science Foundation grant to support the ACM BCB conference. The funds primarily supported travel, hotel, and registration support for fifteen U.S. based students and recently graduated postdoctoral fellows with high priority for female and minority students.

NSF IIS-1940310: ACM BCB 2019: Conference on Bioinformatics, Computational Biology, and Health Informatics, $15,000, Dongmei Wang (PI)

**Key Issues:**

The key issues facing SIGBIO in the near future are:

-- *Membership*: The membership of SIGBIO has increased from the past year by 30 members, or about 10 percent. The smaller student (21) and affiliate (50) membership has grown by nearly 50% (to 30 and 74, respectively). However, the membership is stagnant with respect to long term trends. The main competitor is the large and independent society, the International Society for Computational Biology (ISCB). The key differentiator for SIGBIO is that it serves advancement and penetration of computer science in the bio and health areas. A near term challenge is to increase membership while staying true to our roots within ACM.

-- *Newsletter*: SIGBIO has not been able to attract high quality technical contributions to its newsletter. The newsletter primarily serves the role of disseminating information, and advertise opportunities to our members.

In both of the above cases, expectations from major funding agencies that operate in this area (NIH, Bio division of NSF, USDA) are towards publication and participation in the life sciences domain. However, Computer Science departments and researchers value the focus and forums provided by SIGBIO.

**SIGIR Annual Report**

**July 2019 – June 2020**

**Submitted by: Ben Carterette, SIGIR Chair**

***SIGIR focuses on all aspects of information storage, retrieval and dissemination, including research strategies, output schemes and system evaluations.***

 **Key Initiatives and Accomplishments**

**Students**

·   Awarded over two hundred thousand US$ in student travel scholarships to those attending SIGIR-sponsored and co-sponsored conferences:  SIGIR, ICTIR, CIKM, and WSDM.

·   Continued to support the *Student Affairs Chair*, and the *Student Liaisons Program*.  Added an additional *Student Affairs Co-Chair* to help with workload, and staggered terms to help with transitions.  Recruited new student liaisons to replace those who graduated.  Created a budget for the student liaisons to use to support their events and activities, and a mechanism for requesting funds, and documenting use of the funds. Student liaisons organized student parties at three SIGIR sponsored conferences (CHIIR, WSDM and SIGIR).

·   Hosted a student lunch at the SIGIR Conference.

**Diversity, Equity and Inclusion**

·   Hosted a *Diversity, Equity and Inclusion Lunch* at2019 SIGIR Conference.

·   Provided space and support for the *Women in IR* group at SIGIR 2019, which was launched in 2015 by our members.  The group now has a web presence under the official SIGIR website at <http://sigir.org/women-in-ir/sigir2015.html>

·   Sponsored CRA-W and supported several students who were funded through ACM-W conference travel grants by waiving conference registration and finding mentors.

·   · The DEI co-chairs, introduced in the previous year, have created a checklist for event organisers and shared it with the IR community (<https://surfdrive.surf.nl/files/index.php/s/YlzeG4mQRFWRebD>).

**Community**

·   The SIGIR 2019 conference, which took place in July in Paris, broke a record set in 2017 for the largest SIGIR conference with over 1,000 attendees.

·   Appointed an inaugural *SIGIR Historian*, Donna Harman, who attended the ACM workshop for historians earlier this year. Donna continued her ongoing work on the *SIGIR Museum*, which is a collection of white papers and other early, seminal research papers in IR (<http://sigir.org/resources/museum/> ).  She will also send materials to the ACM to be archived at the Charles Babbage Institute.

·  Launched the SIGIR Academy as a way to recognize people’s contributions to the field of IR. The first year of the Academy will be 2021, with 18 automatically inducted members (ACM Fellows and SIGIR Salton Award Winners), and the deadline for additional nominations set to December 31, 2020. The Academy selection committee was formed by considering diversity and inclusion, and is chaired by Ryen W. White. The plan is to award 3-5 new Academy members every year.

·   Based on the recommendations from the SIGIR ACM Badging Taskforce (which concluded its work at SIGIR 2019), appointed the SIGIR ACM Badging Committee chair and vice chair (Nicola Ferro and Johanne Trippas).

·   Continued the co-sponsored *2nd ACM SIGIR/SIGKDD Africa School on Machine Learning for Data Mining and Search (AFIRM)*. This event took place at the end of January 2020 in Cape Town, South Africa.  This event was targeted to junior faculty at institutions in sub-Saharan Africa. We provided USD25,000 in travel support and received 250 applications for this support.  Over 50 participants, representing 13 different African countries, attended.

·   Awarded approximately $33K through our *Friends of SIGIR* program to SIGIR members hosting local, IR-related events. Funding went to support events in a number of countries and included the *Forum on Information Retrieval Evaluation* (India), *IR Autumn School* (Germany), *Asia Information Retrieval Societies Conference*, *Australasian Document Computing Symposium* and *CORIA* (French Information Retrieval Conference).

·   We developed a new mission, vision and logo for the SIG, which were presented at the 2019 SIGIR Conference and received very positive reviews (see images at the end of this report).  The team also outlined a variety of digital assets to make available to conference organizers, including a standard Word Press template for each unique conference that can be used multiple years in a row.  The designer is currently developing these assets, as well as continuing to work on the SIGIR website.

·   Hosted the second annual SIGIR Conference organizers meeting at the 2019 SIGIR Conference, and created a document describing best practices and lessons learned with respect to hosting a SIGIR Conference.

·   Live-streamed and captured all presentations made at the 2019 SIGIR Conference.  Videos will be uploaded to ACM digital library.

**Ongoing and Future Initiatives**

·   We will continue to work on the redesign of the SIGIR website and on the creation of digital assets (e.g., conference website templates, conference signage) for conference organizers.

·   We will continue to work on documenting policies and procedures which have traditionally been passed down orally.  The ACM set-up a GSuite space for us to use, which we have started organizing and populating.  We have asked the steering committees of our fully-sponsored conferences, CHIIR and ICTIR, to also use this space for all of their documentation.

· We will work with the SIGIR ACM Badging Committee chairs to to figure out how to implement the badging procedure in a way that is practically feasible and rewarding to the committee members as well as the community.

· We would like to launch an Open Access Task Force to ensure that all SIGIR publications on the ACM DL stay open access.

· We will launch an Online Conference Committee to address the open problems regarding online and hybrid conferences (time differences, internet access, social activities, inclusion etc.), and to improve conference participants’ satisfaction.

· As a trial effort for sustainability, we will co-locate ICTIR 2021 with SIGIR 2021, regardless of whether they are held online or not.

**Significant Papers**

·   See award winning papers below.

**Awards**

·   Nominated members for various awards, including ACM Fellow.

·   Financially sponsored SIGIR Best Paper Awards, CHIIR Best Paper Awards and ICTIR Best Paper Awards.

·   Proposals are planned this year to make the CHIIR and ICTIR Best Paper Awards official ACM SIGIR awards.

·   At SIGIR 2019 (July 2019), the following awards were made:

o   **Best Paper**: *Variance Reduction in Gradient Exploration for Online Learning to Rank* (Huazheng Wang, Sonwoo Kim, Eric McCord-Snook, Qingyun Wu, Hongning Wang)

o   **Best Short Paper**: *Block-distributed Gradient Boosted Trees* (Theodore Vasiloudis, Hyunsu Cho, Henrik Bostrom)

o   **Best Short Paper Honorable Mention**: *Critically Examining the “Neural Hype”: Weak Baselines and the Additivity of Effectiveness Gains from Neural Ranking Models* (Wei Yang, Kuang Lu, Peilin Yang, Jimmy Lin)

o   **Time of Time Award**: *Novelty and Diversity in Information Retrieval Evaluation* by Charles L.A. Clarke, Maheedhar Kolla, Gordon V. Cormack, Olga Vechtomova, Azin Ashkan, Stefan Büttcher, and Ian MacKinnon, SIGIR 2008

o   **Time of Time Honorable Mention:** *AdaRank*: A Boosting Algorithm for Information Retrieval by Jun Xu and Hang Li, SIGIR 2007

**Significant Challenges**

·   Our biggest challenge right now is navigating the changes to our event schedule and allied events due to COVID.  We have canceled events, shifted events to virtual, and are thinking about how best to create hybrid experiences in the future.  It affects our members in that one of the big benefits of SIGIR membership is access to travel support, and now we have fewer options and avenues for that.  Furthermore online events can be less satisfying and less inclusive in some ways, so a significant challenge is finding ways to keep our events satisfying and inclusive.



1. https://en.wikipedia.org/w/index.php?title=List\_of\_important\_publications\_in\_computer\_science&oldid=971632291#Networking [↑](#footnote-ref-1)