



**Association for
Computing Machinery**

Advancing Computing as a Science & Profession

NEWS RELEASE

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WORLD'S LEADING SOFTWARE ENGINEERING CONFERENCE GOES DIGITAL

ESEC/FSE Features Outstanding Research and Best Practices in Software Engineering

New York, NY, October 29, 2020 – ACM, the Association for Computing Machinery, and the ACM Special Interest Group on Software Engineering (SIGSOFT) will present [ESEC/FSE 2020](#), the 27th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering, from November 6-13. This year's conference, which will be held virtually for the first time, will bring together researchers, practitioners, and educators to exchange the latest research results and trends, as well as their practical applications in all areas of software engineering.

ESEC/FSE encompasses the most important developments in the field and includes talks on recent innovations in software engineering; industry best practices; software engineering of the future; workshops; tool demonstrations; and a Student Research Competition.

“Since ESEC and FSE joined together in 2017 to create the world's most important software engineering event, we have gone from strength to strength,” says ESEC/FSE General Chair Prem Devanbu, University of California. “Even among the many disciplines within computing, software engineering is characterized by lightning-fast innovation, and ESEC/FSE is *the* venue where top minds from around the world convene to discuss the trends shaping our field. From the enormous impact of the cloud and recent AI applications, to the latest programming languages, to recent technologies such as blockchain, the ESEC/FSE program covers everything that is happening in the world of software engineering and development. Although the 2020 conference will be offered virtually, our organizing committee has worked hard to ensure participants will enjoy a fully immersive experience.”

ESEC/FSE 2020 HIGHLIGHTS:

Visit [here](#) for the full ESEC/FSE 2020 program.

KEYNOTE ADDRESSES

“ATARI WOMEN—retro gaming and the women pioneers behind them”

Pernille Bjørn, University of Copenhagen (Denmark)

In this keynote, Bjørn will celebrate the women who made important contribution to Atari gaming in the 1970s and 80s. Bjørn hopes to challenge the contemporary predominantly masculine representation of computer game development and re-work current historical (“retro”) celebratory memories of gaming

to include hidden stories about women's contributions. Bjørn and her collaborators identified 29 CIS- and trans-women who made important contributions to Atari, and 13 of these women shared their stories.

“Real world approaches to human-computer collaboration”

Mira Lane, Microsoft

In her talk, Lane will argue that, as technologies begin to closely replicate aspects of creative human output, we must consider the evolution of our relationship to technology. She maintains that new technologies alter our interactions with one other, they have the potential to empower and rapidly turn our ideas into reality, and yet... we all know that we must tread intentionally in this new era. Lane will pose the questions: “Should we aim for more ambitious relationships between computers and ourselves?” and “What does responsible innovation mean in an increasingly complex and interconnected world?”

“The Diversity and Inclusion Imperative for Software Engineering”

Fatima Kardar, Microsoft

In this talk, Fatima Kardar, a General Manager and Chief Technical Advisor to Microsoft's Chief Technology Officer Kevin Scott, will address why diversity and inclusion initiatives are essential actions for the technology industry and share examples of what Microsoft is doing to change its culture to make it real.

ACM SIGSOFT TEST OF TIME AWARD

“FUSION: a framework for engineering self-tuning, self-adaptive software systems”

Ahmed M. Elkhodary, Naeem Esfahani, Sam Malek, George Mason University

Self-adaptive software systems are capable of adjusting their behavior at run-time to achieve certain objectives. Such systems typically employ analytical models specified at design-time to assess their characteristics at run-time and make the appropriate adaptation decisions. However, prior to system's deployment, engineers often cannot foresee the changes in the environment, requirements, and system's operational profile. Therefore, any analytical model used in this setting relies on underlying assumptions that if not held at run-time make the analysis and hence the adaptation decisions inaccurate. The authors present and evaluate FeatUre-oriented Self-adaptatIOn (FUSION) framework, which aims to solve this problem by learning the impact of adaptation decisions on the system's goals.

RESEARCH PAPERS (partial list)

For a full list of research papers, [visit here](#).

“A Comprehensive Study on Challenges in Deploying Deep Learning Based Software”

Zhenpeng Chen, Yanbin Cao, Yuanqiang Liu, Tao Xie, Xuanzhe Liu, Peking University; Haoyu Wang, Beijing University of Posts and Communications

Deep learning (DL) becomes increasingly pervasive, being used in a wide range of software applications. This paper presents a comprehensive study on understanding challenges in deploying DL software. The authors mine and analyze 3,023 relevant posts from Stack Overflow, a popular Q&A website for developers, and show the increasing popularity and high difficulty of DL software deployment among developers.

“On the Relationship between Design Discussions and Design Quality: A Case Study of Apache Projects”

Umme Ayda Mannan, Carlos Jensen, Anita Sarma, Oregon State University; Iftekhar Ahmed, University of California at Irvine

Open design discussion is a primary mechanism through which open source projects debate, make and document design decisions. However, there are open questions regarding how design discussions are conducted and what effect they have on the design quality of projects. The authors examine 37 Apache projects and their design discussions, the project's design quality evolution, and the relationship between design discussion and design quality.

“Robotics Software Engineering: A Perspective from the Service Robotics Domain”

Sergio Garcia, Thorsten Berger, Patrizio Pelliccione, University of Gothenburg (Sweden); Daniel Strüber, Radboud University (The Netherlands); Davide Brugali, University of Bergamo (Italy)

Robots that support humans by performing useful tasks (a.k.a., service robots) are booming worldwide. The authors conducted 18 semi-structured interviews with industrial practitioners working in 15 companies from 9 different countries and a survey with 156 respondents from 26 countries from the robotics domain. Their results provide a comprehensive picture of (i) the practices applied by robotics industrial and academic practitioners, including processes, paradigms, languages, tools, frameworks, and reuse practices, (ii) the distinguishing characteristics of robotics software engineering, and (iii) recurrent challenges usually faced, together with adopted solutions.

INDUSTRY TRACK PAPERS (partial list)

For a full list of industry papers, [visit here](#).

“A First Look at the Integration of Machine Learning Models in Complex Autonomous Driving Systems: A Case Study on Apollo”

Pengzi, Jinqiu Yang, Tse-Hsun (Peter) Chen, Concordia University (Canada); Lei Ma, Kyushu University (Japan)

Autonomous Driving System (ADS) is one of the most promising and valuable large-scale machine learning (ML) powered systems. The authors conduct an in-depth case study on Apollo, which is one of the state-of-the-art ADS, widely adopted by major automakers worldwide. In particular, the authors study the Apollo source code and present the underlying ML model system architecture. The authors present their findings on how the ML models interact with each other, and how the ML models are integrated with code logic to form a complex system.

“Online Sports Betting through the Prism of Software Engineering”

Gvozden Marinkovic, PlusPlus NT (Serbia); Nikola Lukic, University of Southern California; Nenad Medvidović, University of Southern California

Online sports betting is a \$50B industry that is heavily driven by software. The domain imposes significant demands on developers: the resulting solutions are large, complex, distributed, concurrent software systems with strict availability, real-time performance, scalability, reliability, and security requirements. In this paper, the authors describe their experience with EmpireBet, a family of online sports betting platforms built and deployed over the past 15 years.

“Establishing Key Performance Indicators for Measuring Software-Development Processes at a Large Organization”

Cem Sürücü, Volkswagen Financial Services, University of Magdeburg (Germany); Bianying Song, Volkswagen Financial Services; Jacob Krüger, Gunter Saake, University of Magdeburg; Thomas Leich, Harz University of Applied Sciences (Germany)

Developing software systems in large organizations requires the cooperation of various organizational units and stakeholders. In this paper, the authors give a report of their experiences of introducing new key performance indicators for software-development processes at Volkswagen Financial Services AG, a large organization in the financial sector. They describe i) their methodology; ii) how they customized

and used key performance indicators; iii) benefits achieved, namely improved monitoring and comparability, which help to define quality-improving actions; iv) and six lessons learned. They believe these insights will be helpful for other practitioners, providing an overview of a methodology they can adopt to assess the feasibility of key performance indicators as well as their benefits.

WORKSHOPS

[A-TEST 2020](#)

11th International Workshop on Automating TEST case Design, Selection and Evaluation

[EASEAI 2020](#)

2nd International Workshop on Education through Advanced Software Engineering and Artificial Intelligence

[LANGETI 2020](#)

Languages and Tools for Next Generation Testing Workshop

[SEAD 2020](#)

3rd International Workshop on Software Security from Design to Deployment

[RL+SE&PL 2020](#)

Workshop on Representation Learning for Software Engineering and Program Languages

[MaLTeSQuE 2020](#)

Workshop on Machine Learning Techniques for Software Quality Evaluation

[APEQS 2020](#)

Workshop on Architectures and Paradigms for Engineering Quantum Software

About ACM SIGSOFT

[ACM SIGSOFT](#) focuses on issues related to all aspects of software development and maintenance. Areas of special interest include: requirements, specification and design, software architecture, validation, verification, debugging, software safety, software processes, software management, measurement, user interfaces, configuration management, software engineering environments, and CASE tools. SIGSOFT sponsors or co-sponsors many [conferences and events](#).

About ACM

[ACM, the Association for Computing Machinery](#), is the world's largest educational and scientific computing society, uniting computing educators, researchers and professionals to inspire dialogue, share resources and address the field's challenges. ACM strengthens the computing profession's collective voice through strong leadership, promotion of the highest standards, and recognition of technical excellence. ACM supports the professional growth of its members by providing opportunities for life-long learning, career development, and professional networking.

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