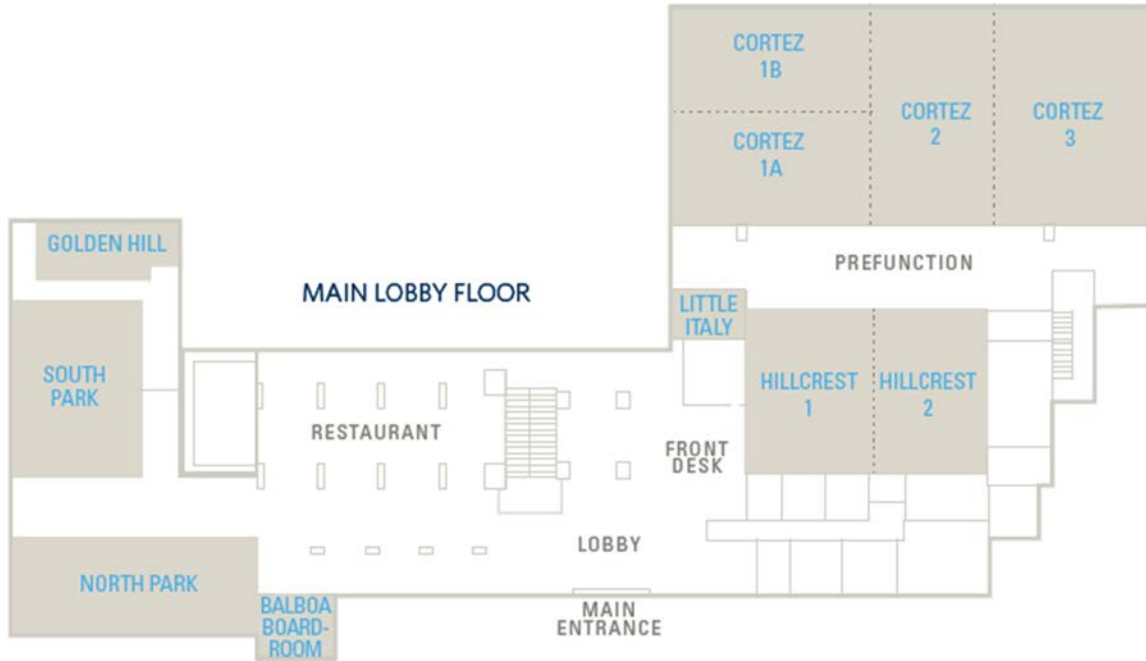
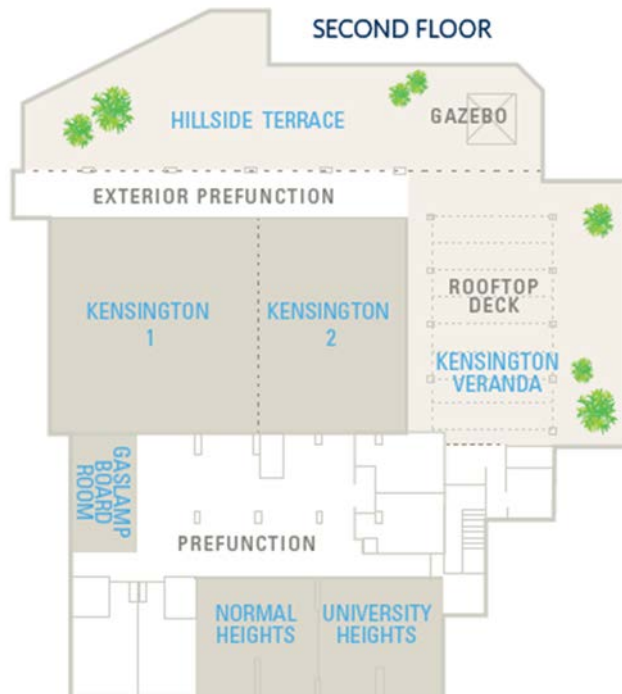


HILTON SAN DIEGO MISSION VALLEY FLOORPLAN

Main Lobby Floor



Second Floor



Welcome to the ASE 2019 Conference in San Diego!

— Internet —

Please use the following information to connect to the conference Wi-Fi. Remember that Internet bandwidth is a shared and limited resource. Please respect the other attendees and don't use it for high bandwidth activities (e.g. streaming media or downloading large files).

ssid: **ASE2019** password: **Nova6666**

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— ASE 2019 Proceedings —

url: <https://conferences.computer.org/ase/2019/#!/home>

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— Sunday, November 10 —

Registration Desk

Sun, Nov 10, 16:00 - 18:00, North Park

NSF Workshop Deep Learning and Software Engineering (invitation only)

Sun, Nov 10, 17:00 - 21:00, Kensington 2

Organizers: Denys Poshyvanyk, Baishakhi Ray

— Monday, November 11 —

On Monday coffee breaks are from 10:30-11:00 and 15:30-16:00 in Cortez Foyer/Kensington Terrace.

Lunch break is from 12:30-14:00 in Kensington Ballroom/Kensington Terrace.

Registration Desk

Mon, Nov 11, 08:00 - 11:00, North Park

Mon, Nov 11, 16:00 - 18:00, North Park

JPF 2019: Java Pathfinder Workshop

Mon, Nov 11, 09:00 - 17:30, Hillcrest 1

Organizers: Cyrille Artho, Quoc-Sang Phan

SEAD 2019: International Workshop on Software Security from Design to Deployment

Mon, Nov 11, 09:00 - 17:30, Hillcrest 2

Organizers: Matthias Galster, Mehdi Mirakhorli, Laurie Williams

A-Mobile 2019: International Workshop on Advances in Mobile App Analysis

Mon, Nov 11, 09:00 - 17:30, Cortez 1B

Organizers: Li Li, Guozhu Meng, Jacques Klein, Sam Malek

Celebration of ASE 2019

Mon, Nov 11, 09:00 - 17:00, Cortez 2

Organizers: Joshua Garcia, Julia Rubin

NSF Workshop Deep Learning and Software Engineering (invitation only)

Mon, Nov 11, 08:30 - 23:59, Cortez 3

The plenary session of the workshop is in Cortez 3. Breakout sessions of the workshop are in South Park, University Heights (until 23:59), and Normal Heights (until 17:30)

Doctoral Symposium (invitation only)

Mon, Nov 11, 08:30 - 17:30, Cortez 1A

Doctoral Symposium Co-Chairs: Myra Cohen, Zhenchang Xing

Automatic Generation of Graphical User Interface Prototypes from Unrestricted Natural Language Requirements

Kristian Kolthoff

Automatically Repairing Binary Programs Using Adapter Synthesis

Vaibhav Sharma

Enabling Continuous Improvement of a Continuous Integration Process

Carmine Vassallo

Generating Tests to Analyse Dynamically-Typed Programs

Stephan Lukasczyk

Improving Collaboration Efficiency in Fork-based Development

Shurui Zhou

Improving Patch Quality by Enhancing Key Components of Automatic Program Repair

Mauricio Soto

Inference of Properties from Requirements and Automation of their Formal Verification

Marina Reich

Tackling Build Failures in Continuous Integration

Foyzul Hassan

Meetings: ICSE Steering Committee Meeting

Mon, Nov 11, 18:00 - 23:59, Normal Heights

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— Tuesday, November 12 —

Registration Desk

Tue, Nov 12, 07:30 - 11:00, North Park

NSF Workshop Deep Learning and Software Engineering (invitation only) – Organizers

Tue, Nov 12, 08:30 - 18:00, Normal Heights

Plenary Session

Tue, Nov 12, 08:30 - 10:00, Cortez Ballroom

08:30 Welcome from the Chairs

Julia Lawall, Darko Marinov, Thomas Zimmermann

09:00 Keynote: Re-engineering Software Engineering for a Data-centric World

Miryung Kim

Abstract: With the development of big data, machine learning, and AI, existing software engineering techniques must be re-imagined to provide the productivity gains that developers desire. This talk will review emerging roles of data scientists and the tools they need to build scalable, correct, and efficient software for a data centric world.

Kim will present a large-scale study of about 800 data scientists in collaboration with Microsoft Research, which looked at data scientists' educational background, problem topics that they work on, tools they use, and activities. From the gathered data, she has identified nine distinct clusters of data scientists and best practices and challenges faced by each cluster.

In the second half of this talk, she will discuss the needs of re-targeting SE research community's directions to address new challenges in the era of data-centric software development. In particular, she will detail some examples of her group's work that re-invents debugging and testing for big data distributed systems such as Apache Spark. She will conclude with open SE problems in ML and heterogeneous computing that support data-centric software development.



Miryung Kim is a Professor in the Department of Computer Science at the University of California, Los Angeles and is a Director of Software Engineering and Analysis Laboratory. She is known for her research on code clones — code duplication detection, management, and removal solutions. Recently, she has taken a leadership role in defining the emerging area of software engineering for data science.

She received her B.S. in Computer Science from Korea Advanced Institute of Science and Technology in 2001 and her M.S. and Ph.D. in Computer Science and Engineering from the University of Washington in 2003 and 2008 respectively. She ranked No. 1 among all engineering and science students in KAIST in 2001 and received the Korean Ministry of Education, Science, and Technology Award, the highest honor given to an undergraduate student in Korea. She received various awards including an NSF CAREER award, Google Faculty Research Award, and Okawa Foundation Research Award. She was previously an assistant professor at the University of Texas at Austin. Her research is funded by National Science Foundation, Air Force

Research Laboratory, Google, IBM, Intel, Okawa Foundation, and Samsung and currently, she is leading a 4.9M Office of Naval Research project on synergistic software customization. She is a Program Co-Chair of the IEEE 35th International Conference on Software Evolution and Maintenance and an Associate Editor of IEEE Transactions on Software Engineering and Empirical Software Engineering.

Social: Coffee Break

Tue, Nov 12, 10:00 - 10:40, Cortez Foyer/Kensington Terrace

Break sponsored by NASA

Poster Session: Tool Demonstrations 1

Tue, Nov 12, 10:00 - 10:40, Kensington Ballroom

LIRAT: Layout and Image Recognition Driving Automated Mobile Testing of Cross-Platform

Shengcheng Yu, Chunrong Fang, Yang Feng, Wenyuan Zhao and Zhenyu Chen

A Quantitative Analysis Framework for Recurrent Neural Network

Xiaoning Du, Xiaofei Xie, Yi Li, Lei Ma, Yang Liu and Jianjun Zhao

SPrinter: A Static Checker for Finding Smart Pointer Errors in C++ Programs

Xutong Ma, Jiwei Yan, Yaqi Li, Jun Yan and Jian Zhang

FPChecker: Detecting Floating-Point Exceptions in GPU Applications

Ignacio Laguna

FogWorkflowSim: An Automated Simulation Toolkit for Workflow Performance Evaluation in Fog Computing

Xiao Liu, Lingmin Fan, Jia Xu, Xuejun Li, Lina Gong, John Grundy and Yun Yang

VeriAbs : Verification by Abstraction and Test Generation

Mohammad Afzal, A Asia, Avriti Chauhan, Bharti Chimdyalwar, Priyanka Darke, Advaita Datar, Shrawan Kumar and R Venkatesh

Pangolin: An SFL-based Toolset for Feature Localization

Bruno Miguel Sotto-Mayor de Castro Machado, Alexandre Perez and Rui Abreu

SiMPOSE - Configurable N-Way Program Merging Strategies for Superimposition-based Analysis of Variant-Rich Software

Dennis Reuling, Udo Kelter, Sebastian Ruland and Malte Lochau

SGUARD: A Feature-based Clustering Tool for Effective Spreadsheet Defect Detection

Da Li, Huiyan Wang, Chang Xu, Ruiqing Zhang, Shing-Chi Cheung and Xiaoxing Ma

DeepHunter: A Coverage-Guided Fuzzer for Deep Neural Networks

Xiaofei Xie, Hongxu Chen, Yi Li, Lei Ma, Yang Liu and Jianjun Zhao

PMExec: An Execution Engine of Partial UML-RT Models

Mojtaba Bagherzadeh, Karim Jahed, Nafiseh Kahani and Juergen Dingel

Ares: Inferring Error Specifications through Static Analysis

Li Chi, Zuxing Gu, Min Zhou, Ming Gu and Hongyu Zhang

Breakout Session: Mobile 1

Tue, Nov 12, 10:40 - 12:20, Hillcrest

Session Chair: Marouane Kessentini

- 10:40 Test Transfer Across Mobile Apps Through Semantic Mapping (Technical Track)
Jun-Wei Lin, Reyhaneh Jabbarvand and Sam Malek
- 11:00 Test Migration Between Mobile Apps with Similar Functionality (Technical Track)
Farnaz Behrang and Alessandro Orso
- 11:20 DaPanda: Detecting Aggressive Push Notification in Android Apps (Technical Track)
Tianming Liu, Haoyu Wang, Li Li, Guangdong Bai, Yao Guo and Guoai Xu
- 11:40 Automatic, highly accurate app permission recommendation (Journal First)
Zhongxin Liu, Xin Xia, David Lo and John Grundy
- 12:00 LIRAT: Layout and Image Recognition Driving Automated Mobile Testing of Cross-Platform (Demonstration)
Shengcheng Yu, Chunrong Fang, Yang Feng, Wenyuan Zhao and Zhenyu Chen
- 12:10 Humanoid: A Deep Learning-based Approach to Automated Black-box Android App Testing (Demonstration)
Yuanchun Li, Ziyue Yang, Yao Guo and Xiangqun Chen

Breakout Session: Testing and Coverage

Tue, Nov 12, 10:40 - 12:20, Cortez 1

Session Chair: Jonathan Bell

- 10:40 Automatic Self-Validation for Code Coverage Profilers (Technical Track)
Yibiao Yang, Yanyan Jiang, Zhiqiang Zuo, Yang Wang, Hao Sun, Hongmin Lu, Yuming Zhou and Baowen Xu
- 11:00 Efficient Test Generation Guided by Field Coverage Criteria (Technical Track)
Ariel Godio, Valeria Bengolea, Pablo Ponzio, Nazareno Aguirre and Marcelo F. Frias
- 11:20 Exploring Output-Based Coverage for Testing PHP Web Applications (Journal First)
Hung Viet Nguyen, Hung Dang Phan, Christian Kästner and Tien N. Nguyen
- 11:40 PHANTA: Diversified Test Code Quality Measurement for Modern Software Development (Industry Showcase)
Susumu Tokumoto and Kuniharu Takayama
- 12:00 TestCov: Robust Test-Suite Execution and Coverage Measurement (Demonstration)
Dirk Beyer and Thomas Lemberger
- 12:10 VisFuzz: Understanding and Intervening Fuzzing with Interactive Visualization (Demonstration)
Chijin Zhou, Mingzhe Wang, Jie Liang, Zhe Liu, Chengnian Sun and Yu Jiang

Breakout Session: AI and SE

Tue, Nov 12, 10:40 - 12:20, Cortez 2&3

Session Chair: Zhenchang Xing

- 10:40 Assessing the Generalizability of code2vec Token Embeddings (Technical Track)
Kang Hong Jin, Tegawendé F. Bissyandé and David Lo
- 11:00 Multi-Modal Attention Network Learning for Semantic Source Code Retrieval (Technical Track)
Yao Wan, Jingdong Shu, Yulei Sui, Guandong Xu, Zhou Zhao, Jian Wu and philip yu
- 11:20 🏆 Experience Paper: Search-based Testing in Automated Driving Control Applications (Technical Track)
Christoph Gladisch, Thomas Heinz, Christian Heinzemann, Jens Oehlerking, Anne von Vietinghoff and Tim Pfitzer
- 11:40 Machine Translation-Based Bug Localization Technique for Bridging Lexical Gap (Journal First)
Yan Xiao, Jacky Keung, Kwabena E. Bennin and Qing Mi
- 12:00 AutoFocus: Interpreting Attention-based Neural Networks by Code Perturbation (Technical Track/New Idea)
Nghi Duy Quoc Bui, Yijun Yu and Lingxiao Jiang
- 12:10 A Quantitative Analysis Framework for Recurrent Neural Network (Demonstration)
Xiaoning Du, Xiaofei Xie, Yi Li, Lei Ma, Yang Liu and Jianjun Zhao

Social: Lunch Break

Tue, Nov 12, 12:20 - 13:40, Kensington Ballroom/Kensington Terrace

Lunch sponsored by Microsoft

First-Timer's Lunch. Inspired by SIGCSE's successful first timer's lunch, ASE will set aside a section of tables at lunch for first-time conference attendees to meet one another and help to create a cohort peer group that can socially support one another throughout the conference and in future years. A senior member of the community will sit at each table to help introduce those first-timers to the conference and establish social links to long-time conference attendees.

Social: Local College Student Visits

Tue, Nov 12, 13:00 - 17:40

Local College Student Visits. ASE will be held in San Diego, CA, home to many colleges and universities, such as UCSD, CSU San Marcos, San Diego State University, San Diego Community College, San Diego Mesa College, and numerous others. To inspire college students who may be interested in the software engineering research field, local college faculty and their students come to the first day's afternoon sessions of ASE to attend talks, meet senior members of the ASE community, and hear from an inspiring speaker about the exciting possibilities that await them if they choose to go to graduate school.

Student Research Competition: Poster Session for Judges

Tue, Nov 12, 13:40 - 15:20, Kensington Ballroom

Breakout Session: Mobile 2

Tue, Nov 12, 13:40 - 15:20, Hillcrest

Session Chair: Myra Cohen

- 13:40 A Qualitative Analysis of Android Taint-Analysis Results (Technical Track)
Linghui Luo, Eric Bodden and Johannes Späth
- 14:00 Goal-Driven Exploration for Android Applications (Technical Track)
Duling Lai and Julia Rubin
- 14:20 RANDR: Record and Replay for Android Applications via Targeted Runtime Instrumentation (Technical Track)
Onur Sahin, Assel Aliyeva, Hariharan Mathavan, Ayse Coskun and Manuel Egele
- 14:40 Specifying Callback Control Flow of Mobile Apps Using Finite Automata (Journal First)
Danilo Dominguez Perez and Wei Le
- 15:00 MalScan: Fast Market-Wide Mobile Malware Scanning by Social-Network Centrality Analysis (Technical Track)
Yueming Wu, Xiaodi Li, Deqing Zou, Wei Yang, Xin Zhang and Hai Jin

Breakout Session: Testing and Verification

Tue, Nov 12, 13:40 - 15:20, Cortez 1

Session Chair: Weihang Wang

- 13:40 Systematically Covering Input Structure (Technical Track)
Nikolas Havrikov and Andreas Zeller
- 14:00 SEGATE: Unveiling Semantic Inconsistencies between Code and Specification of String Inputs (Technical Track)
Devika Sondhi and Rahul Purandare
- 14:20 Detecting Error-Handling Bugs without Error Specification Input (Technical Track)
Zhouyang Jia, Shanshan Li, Tingting Yu, Xiangke Liao, Ji Wang, Xiaodong Liu and Yunhuai Liu
- 14:40 Test Automation and its Limitations (Industry Showcase)
Ahyoung Sung, Yangsu Kim, Sangjun Kim, Jongin Kim and Neo Jang
- 15:00 Grading-Based Test Suite Augmentation (Technical Track/New Idea)
Jonathan Osei-Owusu, Angello Astorga, Liia Butler, Tao Xie and Geoffrey Challen
- 15:10 MutAPK: Source-Codeless Mutant Generation for Android Apps (Demonstration)
Camilo Escobar-Velásquez, Michael Osorio-Riaño and Mario Linares-Vásquez

Breakout Session: Natural Language and Human Aspects

Tue, Nov 12, 13:40 - 15:20, Cortez 2&3

Session Chair: Bogdan Vasilescu

- 13:40 Discovering, Explaining and Summarizing Controversial Discussions in Community Q&A Sites (Technical Track)
Xiaoxue Ren, Zhenchang Xing, Xin Xia, Guoqiang Li and Jianling Sun
- 14:00 Automating App Review Response Generation (Technical Track)
Cuiyun Gao, Jichuan Zeng, Xin Xia, David Lo, Michael Lyu and Irwin King
- 14:20 🏆 Automatic Generation of Pull Request Descriptions (Technical Track)
Zhongxin Liu, Xin Xia, Christoph Treude, David Lo and Shanping Li
- 14:40 Recommending Who to Follow in the Software Engineering Twitter Space (Journal First)
Abhishek Sharma, Yuan Tian, Agus Sulistya, Dinusha Wijedasa and David Lo
- 15:00 Developer Reputation Estimator (DRE) (Demonstration)
Sadika Amreen, Andrey Karanuch and Audris Mockus
- 15:10 CocoQa: Question Answering for Coding Conventions over Knowledge Graphs (Demonstration)
Tianjiao Du, Junming Cao, Qinyue Wu, Wei Li, Beijun Shen and Yuting Chen

Social: Coffee Break

Tue, Nov 12, 15:20 - 16:00, Cortez Foyer/Kensington Terrace

Break sponsored by Accenture

Poster Session: Student Research Competition

Tue, Nov 12, 15:20 - 16:00, Kensington Ballroom

Toward Practical Automatic Program Repair

Ali Ghanbari

Empirical Study of Python Call Graph

Li Yu

Retrieve and Refine: Exemplar-based Neural Comment Generation

Bolin Wei

API Design Implications of Boilerplate Client Code

Daye Nam

A Machine Learning based Approach to Identify SQL Injection Vulnerabilities

Kevin Zhang

An Approach for Investigating Emotion Dynamics in Software Development

Krishna Neupane

Towards Comprehensible Representation of Controllers using Machine Learning

Gargi Balasubramaniam

Boosting Neural Commit Message Generation with Code Semantic Analysis

Shuyao Jiang

Verifying Determinism in Sequential Programs

Rashmi Mudduluru

Compile-time detection of machine image sniping

Martin Kellogg

User Preference Aware Multimedia Pricing Model using Game Theory and Prospect Theory for Wireless Communications

Krishna Murthy Kattiyam Ramamoorthy

Crowdsourced Report Generation via Bug Screenshot Understanding

Shengcheng Yu

An Image-inspired and CNN-based Android Malware Detection Approach

Shao Yang

Breakout Session: Security

Tue, Nov 12, 16:00 - 17:40, Hillcrest

Session Chair: Julia Rubin

- 16:00 🏆 Performance-Boosting Sparsification of the IFDS Algorithm with Applications to Taint Analysis (Technical Track)
Dongjie He, Haofeng Li, Lei Wang, Haining Meng, Hengjie Zheng, Jie Liu, Shuangwei Hu, Lian Li and Jingling Xue
- 16:20 Characterizing Android App Signing Issues (Technical Track)
Haoyu Wang, Hongxuan Liu, Xusheng Xiao, Guozhu Meng and Yao Guo
- 16:40 OAuthLint: An Empirical Study on OAuth Bugs in Android Applications (Technical Track)
Tamjid Al Rahat, Yu Feng and Yuan Tian
- 17:00 Are Free Android App Security Analysis Tools Effective in Detecting Known Vulnerabilities? (Journal First)
Venkatesh-Prasad Ranganath and Joydeep Mitra
- 17:20 SWAN_ASSIST: Semi-Automated Detection of Code-Specific, Security-Relevant Methods (Demonstration)
Goran Piskachev, Lisa Nguyen Quang Do, Oshando Johnson and Eric Bodden
- 17:30 Sip4J: Statically Inferring Access Permission Contracts for Parallelising Sequential Java Programs (Demonstration)
Ayesha Sadiq, Li Li, Yuan-Fang Li, Ijaz Ahmed and Sea Ling

Breakout Session: Testing and Visualization

Tue, Nov 12, 16:00 - 17:40, Cortez 1

Session Chair: Amin Alipour

- 16:00 🏆 History-Guided Configuration Diversification for Compiler Test-Program Generation (Technical Track)
Junjie Chen, Guancheng Wang, Dan Hao, Yingfei Xiong, Hongyu Zhang and Lu Zhang
- 16:20 ReduKtor: How We Stopped Worrying About Bugs in Kotlin Compiler (Technical Track)
Daniil Stepanov, Marat Akhin and Mikhail Belyaev
- 16:40 Targeted Example Generation for Compilation Errors (Technical Track)
Umair Z. Ahmed, Renuka Sindhgatta, Nisheeth Srivastava and Amey Karkare
- 17:00 Lightweight Assessment of Test-Case Effectiveness using Source-Code-Quality Indicators (Journal First)
Giovanni Grano, Fabio Palomba and Harald Gall
- 17:20 Visual Analytics for Concurrent Java Executions (Demonstration)
Cyrille Artho, Monali Pande and Qiyi Tang
- 17:30 NeuralVis: Visualizing and Interpreting Deep Learning Models (Demonstration)
Xufan Zhang, Ziyue Yin, Yang Feng, Qingkai Shi, Jia Liu and Zhenyu Chen

Breakout Session: Code and Artifact Analysis

Tue, Nov 12, 16:00 - 17:40, Cortez 2&3

Session Chair: Marcelo F. Frias

- 16:00 Emotions Extracted from Text vs. True Emotions –An Empirical Evaluation in SE Context (Technical Track)
Yi Wang
- 16:20 Collaborative feature location in models through automatic query expansion (Journal First)
Francisca Pérez, Jaime Font, Lorena Arcega and Carlos Cetina
- 16:40 Learning from Examples to Find Fully Qualified Names of API Elements in Code Snippets (Technical Track)
C M Khaled Saifullah, Muhammad Asaduzzaman and Chanchal K. Roy
- 17:00 Inferring Program Transformations From Singular Examples via Big Code (Technical Track)
Jiajun Jiang, Luyao Ren, Yingfei Xiong and Lingming Zhang
- 17:20 Extracting and studying the Logging-Code-Issue-Introducing changes in Java-based large-scale open source software systems (Journal First)
Boyuan Chen and Zhen Ming (Jack) Jiang

Social: ASE Reception

Tue, Nov 12, 18:00 - 21:00, Kensington Ballroom/Kensington Terrace

Reception sponsored by AWS Automated Reasoning Group

Adhoc affinity group dinner meetups (start meeting 19:30-20:00). We will facilitate dinner meetups at ASE 2019. Volunteers from various affinity groups (e.g. women, Latinx, African Americans, LGBTQAI+, neurodiverse people, people with disabilities, etc.) will gather after the opening conference reception and invite other interested members of the ASE community to come out to dinner as groups. There are several local restaurant options within walking or taxi distance from the conference, from which participants can choose and head over to meet, greet, and eat with one another.

Meetings: ASE Steering Committee Meeting

Tue, Nov 12, 19:00 - 23:59, Normal Heights



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— Wednesday, November 13 —

Registration Desk

Wed, Nov 13, 08:00 - 11:00, North Park

Social: Women's Breakfast

Wed, Nov 13, 07:30 - 08:30, South Park

Women at ASE are invited to meet up and talk over breakfast at the conference hotel. (To sign up for the breakfast please add the breakfast to your ASE conference registration.)

Plenary Session

Wed, Nov 13, 08:30 - 10:00, Cortez Ballroom

08:30 ASE Award Ceremony

Julia Lawall, Darko Marinov, Thomas Zimmermann

09:00 Keynote: The Human Dimension of Cloud Computing

Yuanyuan Zhou

Abstract: Cloud computing has become the typical way to deliver enterprise applications. As today's cloud infrastructure becomes more and more complex with hybrid cloud as well as AI and advanced data processing integrated in the platform, human errors has become one of the major causes of failures in cloud and Internet systems, as reported by many system vendors and service providers. While various fault tolerance and recovery mechanisms are useful in handling hardware and software failures, they are less effective in handling system administrators' human errors. The very recent outage in Facebook on March 13th, 2019 was also caused by a server configuration error, affecting millions of users. In addition to reliability, configuration errors also can lead to security issues. OWASP reports misconfiguration as one of the top 10 most critical web security risks. In 2017, a configuration error of Amazon S3 storage exposed personal information of 200 million users. In this talk, I will focus a few current challenges on the human dimension of cloud computing and management. Due to legacy and various other reasons, most today's data center system management requirement (in particular system configuration) do not follow the primary design principles of human-computer interaction (HCI), namely (i) simplicity, (ii) feedback, and (iii) consistency, making cloud management error prone for system admins.



Yuanyuan (YY) Zhou is a Qualcomm Chair Professor in Mobile Computing at University of California, San Diego (UCSD) since 2009. Her area of expertise includes computer reliability, data center management, and mobile systems. She obtained her MS and Ph.D from Princeton University. She is an ACM Fellow (2013) and IEEE Fellow (2015), Sloan Research Fellow (2007) and the winner of ACM Mark Weiser award (2015). She is always proud of her former and current Ph.D students, six of whom have joined top universities as tenured or tenure-track faculty. In parallel to her academic career, she has also co-founded three companies, with the first two successfully acquired by public companies such as VmWare. Since 2014, she has been busy with her third startup, Whova. It has gained substantial customer traction worldwide and has helped more than 8000 conferences/events in 85 countries, providing her deeper insights in understanding mobile app and web app development process and its unique challenges.

Social: Coffee Break

Wed, Nov 13, 10:00 - 10:40, Cortez Foyer/Kensington Terrace

Break sponsored by NASA

Poster Session: Tool Demonstrations 2

Wed, Nov 13, 10:00 - 10:40, Kensington Ballroom

TestCov: Robust Test-Suite Execution and Coverage Measurement

Dirk Beyer and Thomas Lemberger

DeepMutation++: a Mutation Testing Framework for Deep Learning Systems

Qiang Hu, Lei Ma, Xiaofei Xie, Bing Yu, Yang Liu and Jianjun Zhao

Prema: A Tool for Precise Requirements Editing, Modeling and Analysis

Yihao Huang, Jincan Feng, Hanyue Zheng, Jiayi Zhu, Shang Wang, Siyuan Jiang, Weikai Miao and Geguang Pu

VeriSmart 2.0: Swarm-Based Bug-Finding for Multi-Threaded Programs with Lazy-CSeq

Bernd Fischer, Salvatore La Torre and Gennaro Parlato

ConVul: An Effective Tool for Detecting Concurrency Vulnerabilities

Ruijie Meng, Biyun Zhu, Hao Yun, Haicheng Li, Yan Cai and Zijiang Yang

TsmartGP: A Tool for Finding Memory Defects with Pointer Analysis

Yuexing Wang, Guang Chen, Min Zhou, Ming Gu and Jianguang Sun

Manticore: A User-Friendly Symbolic Execution Framework for Binaries and Smart Contracts

Mark Mossberg, Felipe Manzano, Eric Hennenfent, Alex Groce, Gustavo Grieco, Josselin Feist, Trent Brunson and Artem Dinaburg

BuRRiTo: A Framework to Extract, Specify, Verify and Analyze Business Rules

Pavan Chittimalli, Kritika Anand, Shrishti Pradhan, Sayandeep Mitra, Chandan Prakash, Rohit Shere and Ravindra Naik

mCUTE: A Model-level Concolic Unit Testing Engine for UML State Machines

Reza Ahmadi, Karim Jahed and Juergen Dingel

XRaSE: Towards Virtually Tangible Software using Augmented Reality

Rohit Mehra, Vibhu Saujanya Sharma, Vikrant Kaulgud and Sanjay Podder

MuSC: A Tool for Mutation Testing of Ethereum Smart Contract

Zixin Li, Haoran Wu, Jiehui Xu, Xingya Wang, Lingming Zhang and Zhenyu Chen

Lancer: Your Code Tell Me What You Need

Shufan Zhou, Beijun Shen and Hao Zhong

Student Research Competition: Selected Presentations

Wed, Nov 13, 10:40 - 12:20, South Park

Session Chairs: Jin L.C. Guo, Jie M. Zhang

For the list of presentations, please check the online schedule.

Breakout Session: Cloud and Online Services

Wed, Nov 13, 10:40 - 12:20, Hillcrest

Session Chair: Dan Hao

- 10:40 Understanding Exception-Related Bugs in Large-Scale Cloud Systems (Technical Track)
Haicheng Chen, Wensheng Dou, Yanyan Jiang and Feng Qin
- 11:00 iFeedback: Exploiting User Feedback for Real-time Issue Detection in Large-Scale Online Service Systems (Technical Track)
Wujie Zheng, Haochuan Lu, Yangfan Zhou, Jianming Liang, Haibing Zheng and Yuetang Deng
- 11:20 Software Microbenchmarking in the Cloud. How Bad is it Really? (Journal First)
Christoph Laaber, Joel Scheuner and Philipp Leitner
- 11:40 Continuous Incident Triage for Large-Scale Online Service Systems (Technical Track)
Junjie Chen, Xiaoting He, Qingwei Lin, Hongyu Zhang, Dan Hao, Feng Gao, Zhangwei Xu, Yingnong Dang and Dongmei Zhang
- 12:00 Kotless: a Serverless Framework for Kotlin (Demonstration)
Vladislav Tankov, Yaroslav Golubev and Timofey Bryksin
- 12:10 FogWorkflowSim: An Automated Simulation Toolkit for Workflow Performance Evaluation in Fog Computing (Demonstration)
Xiao Liu, Lingmin Fan, Jia Xu, Xuejun Li, Lina Gong, John Grundy and Yun Yang

Breakout Session: Testing and Program Analysis

Wed, Nov 13, 10:40 - 12:20, Cortez 1

Session Chair: Jun Sun

- 10:40 🏆 Regexes are Hard: Decision-making, Difficulties, and Risks in Programming Regular Expressions (Technical Track)
Louis G. Michael IV, James Donohue, James C. Davis, Dongyoon Lee and Francisco Servant
- 11:00 Testing Regex Generalizability And Its Implications: A Large-Scale Many-Language Measurement Study (Technical Track)
James C. Davis, Daniel Moyer, Ayaan M. Kazerouni and Dongyoon Lee
- 11:20 Accurate String Constraints Solution Counting with Weighted Automata (Technical Track)
Elena Sherman and Andrew Harris
- 11:40 Subformula Caching for Model Counting and Quantitative Program Analysis (Technical Track)
William Eiers, Seemanta Saha, Tegan Brennan and Tefvik Bultan

- 12:00 **SPrinter: A Static Checker for Finding Smart Pointer Errors in C++ Programs (Demonstration)**
Xutong Ma, Jiwei Yan, Yaqi Li, Jun Yan and Jian Zhang
- 12:10 **FPChecker: Detecting Floating-Point Exceptions in GPU Applications (Demonstration)**
Ignacio Laguna

Breakout Session: Program Repair

Wed, Nov 13, 10:40 - 12:20, Cortez 2&3

Session Chair: Yingfei Xiong

- 10:40 **Apricot: A Weight-Adaptation Approach to Fixing Deep Learning Models (Technical Track)**
Hao Zhang and Wing-Kwong Chan
- 11:00 **Re-factoring based Program Repair applied to Programming Assignments (Technical Track)**
Yang Hu, Umair Z. Ahmed, Sergey Mechtaev, Ben Leong and Abhik Roychoudhury
- 11:20 **InFix: Automatically Repairing Novice Program Inputs (Technical Track)**
Madeline Endres, Georgios Sakkas, Benjamin Cosman, Ranjit Jhala and Westley Weimer
- 11:40 **Astor: Exploring the Design Space of Generate-and-Validate Program Repair beyond GenProg (Journal First)**
Matias Martinez and Martin Monperrus
- 12:00 **PraPR: Practical Program Repair via Bytecode Mutation (Demonstration)**
Ali Ghanbari and Lingming Zhang
- 12:10 **Understanding Automatically-Generated Patches Through Symbolic Invariant Differences (Technical Track/New Idea)**
Padraic Cashin, Cari Martinez, Stephanie Forrest and Westley Weimer

Social: Lunch Break

Wed, Nov 13, 12:20 - 13:40, Kensington Ballroom/Kensington Terrace

Lunch sponsored by Microsoft

Diversity and Inclusion Lunch. To help reinforce the ad hoc affinity groups and promote the visibility of diversity and inclusion efforts at ASE 2019, we have set aside tables at lunch for various women, underrepresented minority, LGBTQIA+, neurodiversity, etc. groups to sit together and talk about issues relevant to their experiences in software engineering and conference activities. Each table is “hosted” by a senior member of the community who also belongs to that affinity group.

Student Research Competition – Selected Presentations

Wed, Nov 13, 13:40 - 15:20, South Park

Session Chairs: Jin L.C. Guo, Jie M. Zhang

For the list of presentations, please check the online schedule.

Breakout Session: Configurations and Variability

Wed, Nov 13, 13:40 - 15:20, Hillcrest

Session Chair: Shin Hwei Tan

- 13:40 **ACTGAN: Automatic Configuration Tuning for Software Systems with Generative Adversarial Networks (Technical Track)**
Liang Bao, Xin Liu, Fangzheng Wang and Baoyin Fang
- 14:00 **Automated N-way Program Merging for Facilitating Family-Based Analyses of Variant-Rich Software (Journal First)**
Dennis Reuling, Udo Kelter, Johannes Bürdek and Malte Lochau
- 14:20 **V2: Fast Detection of Configuration Drift in Python (Technical Track)**
Eric Horton and Chris Parnin
- 14:40 **Feature-Interaction Aware Configuration Prioritization for Configurable Code (Technical Track)**
Son Nguyen, Hoan Anh Nguyen, Ngoc Tran, Hieu Tran and Tien N. Nguyen
- 15:00 **Search-based test case implantation for testing untested configurations (Journal First)**
Dipesh Pradhan, Shuai Wang, Tao Yue, Shaukat Ali and Marius Liaaen

Breakout Session: Verification and Bug Detection

Wed, Nov 13, 13:40 - 15:20, Cortez 1

Session Chair: Raghavan Komondoor

- 13:40 Mutation Analysis for Coq (Technical Track)
Ahmet Celik, Karl Palmskog, Marinela Parovic, Emilio Jesús Gallego Arias and Milos Gligoric
- 14:00 Verifying Arithmetic in Cryptographic C Programs (Technical Track)
Jiaxiang Liu, Xiaomu Shi, Ming-Hsien Tsai, Bow-Yaw Wang and Bo-Yin Yang
- 14:20 Model checking embedded control software using OS-in-the-loop CEGAR (Technical Track)
Dongwoo Kim and Yunja Choi
- 14:40 Get rid of inline assembly through verification-oriented lifting (Technical Track)
Frédéric Recoules, Sebastien Bardin, Richard Bonichon, Laurent Mounier and Marie-Laure Potet
- 15:00 VeriAbs : Verification by Abstraction and Test Generation (Demonstration)
Mohammad Afzal, A Asia, Avriti Chauhan, Bharti Chimdyalwar, Priyanka Darke, Advaita Datar, Shrawan Kumar and R Venkatesh
- 15:10 SGUARD: A Feature-based Clustering Tool for Effective Spreadsheet Defect Detection (Demonstration)
Da Li, Huiyan Wang, Chang Xu, Ruiqing Zhang, Shing-Chi Cheung and Xiaoxing Ma

Breakout Session: Systems and Localization

Wed, Nov 13, 13:40 - 15:20, Cortez 2&3

Session Chair: Tegawendé F. Bissyandé

- 13:40 Combining Spectrum-Based Fault Localization and Statistical Debugging: An Empirical Study (Technical Track)
Jiajun Jiang, Ran Wang, Yingfei Xiong, Xiangping Chen and Lu Zhang
- 14:00 SCMiner: Localizing System-Level Concurrency Faults from Large System Call Traces (Technical Track)
Tarannum Shaila Zaman, Xue Han and Tingting Yu
- 14:20 Root Cause Localization for Unreproducible Builds via Causality Analysis over System Call Tracing (Technical Track)
Zhilei Ren, Changlin Liu, Xusheng Xiao, He Jiang and Tao Xie
- 14:40 PTracer: A Linux Kernel Patch Trace Bot (Industry Showcase)
Yang Wen, Jicheng Cao and Shengyu Cheng
- 15:00 Pangolin: An SFL-based Toolset for Feature Localization (Demonstration)
Bruno Miguel Sotto-Mayor de Castro Machado, Alexandre Perez and Rui Abreu
- 15:10 SiMPOSE - Configurable N-Way Program Merging Strategies for Superimposition-based Analysis of Variant-Rich Software (Demonstration)
Dennis Reuling, Udo Kelter, Sebastian Ruland and Malte Lochau

Poster Session: Late Breaking Results

Wed, Nov 13, 15:20 - 16:00, Kensington Ballroom

Software Engineering for Fairness: A Case Study with Hyperparameter Optimization

Joymallya Chakraborty, Tianpei Xia, Fahmid M. Fahid and Tim Menzies

Self Learning from Large Scale Code Corpus to Infer Structure of Method Invocations

Hung Phan

K-CONFIG: Using Failing Test Cases to Generate Test Cases in GCC Compilers

Md Rafiqul Islam Rabin and Mohammad Amin Alipour

On building an automated responding system for app reviews: What are the characteristics of reviews and their responses?

Phong Minh Vu, Tam Nguyen and Tung Thanh Nguyen

Should We Add Repair Time to an Unfixed Bug? An Exploratory Study of Automated Program Repair on 2980 Small-Scale Programs

Chuanqi Xu, Yisen Xu, Yingqi Zhang and Jifeng Xuan

An Empirical Study on the Characteristics of Question-Answering Process on Developer Forums

Yi Li, Shaohua Wang, Tien N. Nguyen, Son Nguyen, Xinyue Ye and Yan Wang

LVMapper: A Large-variance Clone Detector Using Sequencing Alignment Approach

Ming Wu, Pengcheng Wang, Kangqi Yin, Haoyu Cheng, Yun Xu and Chanchal K. Roy

Detecting Deep Neural Network Defects with Data Flow Analysis

Jiazhen Gu, Huanlin Xu, Yangfan Zhou, Xin Wang, Hui Xu and Michael Lyu

Learning test traces

Eyal Hadad and Roni Stern

Recommendation of Exception Handling Code in Mobile App Development

Tam Nguyen, Phong Minh Vu and Tung Thanh Nguyen

A Process Mining based Approach to Improving Defect Detection of SysML Models.

Mounifah Alenazi, Nan Niu and Juha Savolainen

API Misuse Correction: A Statistical Approach

Tam Nguyen, Phong Minh Vu and Tung Thanh Nguyen

Open-Source Projects and their Collaborative Development Workflows

panuchart bunyakiati and Usa Sammapun

Data Sanity Check for Deep Learning Systems via Learnt Assertions

Haochuan Lu, Huanlin Xu, Nana Liu, Yangfan Zhou and Xin Wang

The Dynamics of Software Composition Analysis

Darius Foo, Jason Yeo, Hao Xiao and Asankhaya Sharma

Testing Neural Programs

Md Rafiqul Islam Rabin, Ke Wang and Mohammad Amin Alipour

Social: Coffee Break

Wed, Nov 13, 15:20 - 16:00, Cortez Foyer/Kensington Terrace

Break sponsored by Accenture

Breakout Session: Performance

Wed, Nov 13, 16:00 - 17:40, Hillcrest

Session Chair: Tim Menzies

- 16:00 Accurate Modeling of Performance Histories for Evolving Software Systems (Technical Track)
Stefan Mühlbauer, Sven Apel and Norbert Siegmund
- 16:20 An Industrial Experience Report on Performance-Aware Refactoring on a Database-centric Web Application (Technical Track)
Boyuan Chen, Zhen Ming (Jack) Jiang, Paul Matos and Michael Lalaria
- 16:40 How Do API Selections Affect the Runtime Performance of Data Analytics Tasks? (Technical Track)
Yida Tao, Shan Tang, Yepang Liu, Zhiwu Xu and Shengchao Qin
- 17:00 An Experience Report of Generating Load Tests Using Log-recovered Workloads at Varying Granularities of User Behaviour (Technical Track)
JinFu Chen, Weiyi (Ian) Shang, Ahmed E. Hassan, Yong Wang and Jiangbin Lin
- 17:20 Demystifying Application Performance Management Libraries for Android (Technical Track/New Idea)
Yutian Tang, Zhan Xian, Hao Zhou, Xiapu Luo, Zhou Xu, Yajin Zhou and Qiben Yan
- 17:30 PeASS: A Tool for Identifying Performance Changes at Code Level (Demonstration)
David Georg Reichelt, Stefan Kühne and Wilhelm Hasselbring

Breakout Session: Prediction

Wed, Nov 13, 16:00 - 17:40, Cortez 1

Session Chair: Xin Xia

- 16:00 Predicting Licenses for Changed Source Code (Technical Track)
Xiaoyu Liu, Liguang Huang, Jidong Ge and Vincent Ng
- 16:20 Empirical evaluation of the impact of class overlap on software defect prediction (Technical Track)
Lina Gong, Shujuan Jiang, Rongcun Wang and Li Jiang

- 16:40 Combining Program Analysis and Statistical Language Model for Code Statement Completion (Technical Track)
Son Nguyen, Tien N. Nguyen, Yi Li and Shaohua Wang
- 17:00 Balancing the trade-off between accuracy and interpretability in software defect prediction (Journal First)
Toshiki Mori and Naoshi Uchihira
- 17:20 Fine-grained just-in-time defect prediction (Journal First)
Luca Pascarella, Fabio Palomba and Alberto Bacchelli

Breakout Session: API and Renaming

Wed, Nov 13, 16:00 - 17:40, Cortez 2&3

Session Chair: Massimiliano Di Penta

- 16:00 CodeKernel: A Graph Kernel based Approach to the Selection of API Usage Examples (Technical Track)
Xiaodong Gu, Hongyu Zhang and Sunghun Kim
- 16:20 Machine Learning Based Automated Method Name Recommendation: How Far Are We (Technical Track)
Lin Jiang, Hui Liu and He Jiang
- 16:40 MARBLE: Mining for Boilerplate Code to Identify API Usability Problems (Technical Track)
Daye Nam, Amber Horvath, Andrew Macvean, Brad Myers and Bogdan Vasilescu
- 17:00 DIRE: A Neural Approach to Decompiled Identifier Renaming (Technical Track)
Jeremy Lacomis, Pengcheng Yin, Edward J. Schwartz, Miltiadis Allamanis, Claire Le Goues, Graham Neubig and Bogdan Vasilescu
- 17:20 Automatic Detection and Update Suggestion for Outdated API Names in Documentation (Journal First)
Seonah Lee, Rongxin Wu, Shing-Chi Cheung and Sungwon Kang

Social: ASE Banquet

Wed, Nov 13, 18:00 - 23:59

Banquet sponsored by Huawei

18:00-22:30 ASE Banquet

The banquet will be at the famous Stone Brewing World Bistro & Gardens - Liberty Station. The banquet venue celebrates its prior history as a U.S. Navy mess hall, while introducing new industrial and organic features. Stone Brewing is one of the largest craft breweries in the United States. Liberty Station was a Naval Training Center and the set for several well-known movies including "Top Gun".

Transportation to the banquet starts at 18:00 from the Hilton San Diego Mission Valley. Trolleys will take you on a brief guided tour of San Diego and drop you off at the banquet venue at 19:00.

The return trips from the banquet venue to the Hilton San Diego Mission Valley start at 21:00. Trolleys circulate between the banquet venue and the hotel from 21:00 until 23:00 approximately every 15 minutes.

If you plan to drive or take car sharing services, the address of Stone Brewing World Bistro & Gardens - Liberty Station is: 2816 Historic Decatur Road San Diego, CA 92106

21:00-23:59 Evening D&I Session – Karaoke

Conferences are a great time to network and make professional connections. They are also a great time to make new friends and connect with old ones. This year, as part of the diversity and inclusion program, ASE is hosting a karaoke night where you can come sing and socialize with your fellow conference goers! Karaoke is scheduled for Wednesday, November 13 after the conference banquet at HIVE, 4428 Convoy St Ste 100, San Diego. Buses leave towards the end of the conference banquet, at 9:00 pm sharp.

If you are interested in attending karaoke, please **sign up at <http://bit.ly/ase19-karaoke>**

Space is limited, please only register if you intend to go.

A few things to note before signing up:

- This event is 21+ only.
- We rented out space to accommodate registered attendees, but food and drinks are on your own tab.
- Transportation is provided to the event, however, you are responsible for arranging your own ride back to your lodging.

— Thursday, November 14 —

Registration Desk

Thu, Nov 14, 08:00 - 11:00, North Park

Plenary Session

Thu, Nov 14, 08:30 - 10:00, Cortez Ballroom

08:30 Student Research Competition Awards Ceremony

Jin Guo, Jie Zhang

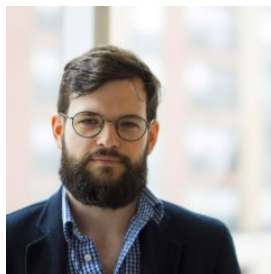
08:45 ASE 2020 Announcement

John Grundy, Claire Le Goues, David Lo

09:00 Keynote: Automated Debug & Profiling of AAA Games

Mathieu Nayrolles

Abstract: Producing AAA games takes a lot of effort and organization. The production pipeline used at Ubisoft for its major brands like Rainbow Six, Assassin Creed or Far Cry is in constant evolution to produce bug-free games for our millions of players and support the game as a service (GaaS) paradigm that is currently transforming the video-game industry. This talk will present how we have automated our debug and profiling activities using known techniques from the software as a service world, landmarks of the SE scientific literature and our own research. This talk will also present the problems we are currently tackling, in partnership with our research lab (Ubisoft La Forge), Mozilla and several Canadian universities (Concordia, Polytechnique Montreal, ETS, McGill), to further automate our production pipeline.



Mathieu Nayrolles has ten years of experience in software quality and productivity. He obtained an M.Eng Soft. Eng. from CESI (France), an MS.c Comp. Sci. from UQAM (Canada) and a Ph.D. ECE from the Intelligent System Logging and Monitoring lab from Concordia (Canada) in 2018. He's now a Technical Architect at Ubisoft Montreal where he leads a team of engineers that focuses on improving the productivity of the thousands of Ubisoft developers scattered around the world. He presented at various international conferences such as SANER, MSR, WCRE or CPPCON. He also wrote various books on open-source technologies such as Angular, Solr or Magento.

Social: Coffee Break

Thu, Nov 14, 10:00 - 10:40, Cortez Foyer/Kensington Terrace

Break sponsored by NASA

Poster Session: Tool Demonstrations 3

Thu, Nov 14, 10:00 - 10:40, Kensington Ballroom

VisFuzz: Understanding and Intervening Fuzzing with Interactive Visualization

Chijin Zhou, Mingzhe Wang, Jie Liang, Zhe Liu, Chengnian Sun and Yu Jiang

Humanoid: A Deep Learning-based Approach to Automated Black-box Android App Testing

Yuan Chun Li, Ziyue Yang, Yao Guo and Xiangqun Chen

Developer Reputation Estimator (DRE)

Sadika Amreen, Andrey Karnauch and Audris Mockus

CocoQa: Question Answering for Coding Conventions over Knowledge Graphs

Tianjiao Du, Junming Cao, Qinyue Wu, Wei Li, Beijun Shen and Yuting Chen

MutAPK: Source-Codeless Mutant Generation for Android Apps

Camilo Escobar-Velásquez, Michael Osorio-Riaño and Mario Linares-Vásquez

Visual Analytics for Concurrent Java Executions

Cyrille Artho, Monali Pande and Qiyi Tang

SWAN_ASSIST: Semi-Automated Detection of Code-Specific, Security-Relevant Methods

Goran Piskachev, Lisa Nguyen Quang Do, Oshando Johnson and Eric Bodden

NeuralVis: Visualizing and Interpreting Deep Learning Models

Xufan Zhang, Ziyue Yin, Yang Feng, Qingkai Shi, Jia Liu and Zhenyu Chen

Sip4J: Statically Inferring Access Permission Contracts for Parallelising Sequential Java Programs

Ayesha Sadiq, Li Li, Yuan-Fang Li, Ijaz Ahmed and Sea Ling

PraPR: Practical Program Repair via Bytecode Mutation

Ali Ghanbari and Lingming Zhang

Kotless: a Serverless Framework for Kotlin

Vladislav Tankov, Yaroslav Golubev and Timofey Bryksin

PeASS: A Tool for Identifying Performance Changes at Code Level

David Georg Reichelt, Stefan Kühne and Wilhelm Hasselbring

Breakout Session: Refactoring and Software Production

Thu, Nov 14, 10:40 - 12:20, Hillcrest

Session Chair: Cyrille Artho

10:40 **RefBot: Intelligent Software Refactoring Bot (Technical Track)**

Vahid Alizadeh, Mohamed Amine Ouali, Marouane Kessentini and Meriem Chater

11:00 **Automated Refactoring to Reactive Programming (Technical Track)**

Mirko Köhler and Guido Salvaneschi

11:20 **Trusted Software Supply Chain (Industry Showcase)**

Kapil Singi, R.P. Jagadeesh Chandra Bose, Sanjay Podder and Adam P. Burden

11:40 **A Journey Towards Providing Intelligence and Actionable Insights to Development Teams in Software Delivery (Industry Showcase)**

Vibhu Saujanya Sharma, Rohit Mehra, Sanjay Podder and Adam P. Burden

12:00 **Prema: A Tool for Precise Requirements Editing, Modeling and Analysis (Demonstration)**

Yihao Huang, Jincuo Feng, Hanyue Zheng, Jiayi Zhu, Shang Wang, Siyuan Jiang, Weikai Miao and Geguang Pu

12:10 **Empirical Study of Programming to an Interface (Technical Track/New Idea)**

Benoît Verhaeghe, Christopher Fuhrman, Nicolas Anquetil, Latifa Guerrouj and Stéphane Ducasse

Breakout Session: Concurrency

Thu, Nov 14, 10:40 - 12:20, Cortez 1

Session Chair: Elena Sherman

10:40 **MAP-Coverage: a Novel Coverage Criterion for Testing Thread-Safe Classes (Technical Track)**

Zan Wang, Yingquan Zhao, Shuang Liu, Jun Sun, Xiang Chen and Huarui Lin

11:00 **Automating Non-Blocking Synchronization In Concurrent Data Abstractions (Technical Track)**

Jiange Zhang, Qing Yi and Damian Dechev

11:20 **Automating CUDA Synchronization via Program Transformation (Technical Track)**

Mingyuan Wu, Lingming Zhang, Cong Liu, Shin Hwei Tan and Yuqun Zhang

11:40 **Efficient Transaction-Based Deterministic Replay for Multi-threaded Programs (Technical Track)**

Ernest Bota Pobe, Xiupei Mei and Wing-Kwong Chan

12:00 **VeriSmart 2.0: Swarm-Based Bug-Finding for Multi-Threaded Programs with Lazy-CSeq (Demonstration)**

Bernd Fischer, Salvatore La Torre and Gennaro Parlato

12:10 **ConVul: An Effective Tool for Detecting Concurrency Vulnerabilities (Demonstration)**

Ruijie Meng, Biyun Zhu, Hao Yun, Haicheng Li, Yan Cai and Zijiang Yang

Breakout Session: Deep Models

Thu, Nov 14, 10:40 - 12:20, Cortez 2&3

Session Chair: Nazareno Aguirre

10:40 🏆 **Wuji: Automatic Online Combat Game Testing Using Evolutionary Deep Reinforcement Learning (Technical Track)**

Yan Zheng, Xiaofei Xie, Ting Su, Lei Ma, Jianye Hao, Zhaopeng Meng, Yang Liu, Ruimin Shen, Yinfeng Chen and Changjie Fan

11:00 **A Study of Oracle Approximations in Testing Deep Learning Libraries (Technical Track)**

Mahdi Nejadgholi and Jinqiu Yang

11:20 **Property Inference for Deep Neural Networks (Technical Track)**

Divya Gopinath, Hayes Converse, Corina S. Pasareanu and Ankur Taly

- 11:40 An Empirical Study towards Characterizing Deep Learning Development and Deployment across Different Frameworks and Platforms (Technical Track)
Qianyu Guo, Sen Chen, Xiaofei Xie, Lei Ma, Qiang Hu, Hongtao Liu, Yang Liu, Jianjun Zhao and Li Xiaohong
- 12:00 DeepMutation++: a Mutation Testing Framework for Deep Learning Systems (Demonstration)
Qiang Hu, Lei Ma, Xiaofei Xie, Bing Yu, Yang Liu and Jianjun Zhao
- 12:10 DeepHunter: A Coverage-Guided Fuzzer for Deep Neural Networks (Demonstration)
Xiaofei Xie, Hongxu Chen, Yi Li, Lei Ma, Yang Liu and Jianjun Zhao

Social: Lunch Break

Thu, Nov 14, 12:20 - 13:40, Kensington Ballroom/Kensington Terrace

Lunch sponsored by Microsoft

Faculty Mentorship Lunch. The Faculty Mentorship Roundtable program aims to connect junior SE faculty with more senior mentors, and with peers at similar stage of their career. It is intended to provide a low-pressure atmosphere to foster building one's support group and mentorship. Participants will have the opportunity to suggest the topics they struggle with, ranging from research directions to career tips to "soft skills" (e.g., managing priorities, a quality process for hiring students, mentoring students to grow into tomorrow's leaders, etc). Mentors will get to pass along their tips for success in software research and mentoring students. Since space is limited, application by November 4, 2019 is/was required.

Breakout Session: Models and Logs

Thu, Nov 14, 13:40 - 15:20, Hillcrest

Session Chair: Timo Kehrer

- 13:40 Statistical Log Differencing (Technical Track)
Lingfeng Bao, Nimrod Busany, David Lo and Shahar Maoz
- 14:00 Logzip: Extracting Hidden Structures via Iterative Clustering for Log Compression (Technical Track)
Jinyang Liu, Jieming Zhu, Shilin He, Pinjia He, Zibin Zheng and Michael Lyu
- 14:20 Code-First Model-Driven Engineering: On the Agile Adoption of MDE Tooling (Technical Track)
Artur Boronat
- 14:40 Size and Accuracy in Model Inference (Technical Track)
Nimrod Busany, Shahar Maoz and Yehonatan Yulazari
- 15:00 PMExec: An Execution Engine of Partial UML-RT Models (Demonstration)
Mojtaba Bagherzadeh, Karim Jahed, Nafiseh Kahani and Juergen Dingel
- 15:10 mCUTE: A Model-level Concolic Unit Testing Engine for UML State Machines (Demonstration)
Reza Ahmadi, Karim Jahed and Juergen Dingel

Breakout Session: Program Analysis

Thu, Nov 14, 13:40 - 15:20, Cortez 1

Session Chair: Coen De Roover

- 13:40 Debreach: Mitigating Compression Side Channels via Static Analysis and Transformation (Technical Track)
Brandon Paulsen, Chungha Sung, Peter Peterson and Chao Wang
- 14:00 Fine-grain memory object representation in symbolic execution (Technical Track)
Martin Nowack
- 14:20 RENN: Efficient Reverse Execution with Neural-Network-assisted Alias Analysis (Technical Track)
Dongliang Mu, Wenbo Guo, Alejandro Cuevas, Yueqi Chen, Jinxuan Gai, Xinyu Xing, Bing Mao and Chengyu Song
- 14:40 Batch Alias Analysis (Technical Track)
Jyothi Vedurada and V Krishna Nandivada
- 15:00 Manticore: A User-Friendly Symbolic Execution Framework for Binaries and Smart Contracts (Demonstration)
Mark Mossberg, Felipe Manzano, Eric Hennenfent, Alex Groce, Gustavo Grieco, Josselin Feist, Trent Brunson and Artem Dinaburg
- 15:10 BuRRiTo: A Framework to Extract, Specify, Verify and Analyze Business Rules (Demonstration)
Pavan Chittimalli, Kritika Anand, Shrishti Pradhan, Sayandeep Mitra, Chandan Prakash, Rohit Shere and Ravindra Naik

Breakout Session: Mining and Bug Detection

Thu, Nov 14, 13:40 - 15:20, Cortez 2&3

Session Chair: Chanchal K. Roy

- 13:40 Automatically 'Verifying' Complex Systems through Learning, Abstraction and Refinement (Journal First)
Jingyi Wang, Jun Sun, Shengchao Qin and Cyrille Jegourel
- 14:00 Interactive semi-automated specification mining for debugging: An experience report (Journal First)
Mohammad Jafar Mashhadi, Taha R. Siddiqui, Hadi Hemmati and Howard W. Loewen
- 14:20 Improving reusability of software libraries through usage pattern mining (Journal First)
Mohamed Aymen Saied, Ali Ouni, Houari Sahraoui, Raula Gaikovina Kula, Katsuro Inoue and David Lo
- 14:40 Rule-based specification mining leveraging learning to rank (Journal First)
Zherui Cao, Yuan Tian, Tien-Duy B. Le and David Lo
- 15:00 TsmartGP: A Tool for Finding Memory Defects with Pointer Analysis (Demonstration)
Yueying Wang, Guang Chen, Min Zhou, Ming Gu and Jiaguang Sun
- 15:10 Ares: Inferring Error Specifications through Static Analysis (Demonstration)
Li Chi, Zuxing Gu, Min Zhou, Ming Gu and Hongyu Zhang

Social: Coffee Break

Thu, Nov 14, 15:20 - 16:00, Cortez Foyer/Kensington Terrace

Break sponsored by Accenture

Breakout Session: Software Development

Thu, Nov 14, 16:00 - 17:40, Hillcrest

Session Chair: Hitesh Sajjani

- 16:00 What is Wrong with Topic Modeling? (and How to Fix it Using Search-based Software Engineering) (Journal First)
Amritanshu Agrawal, Wei Fu and Tim Menzies
- 16:20 Cautious Adaptation of Defiant Components (Technical Track)
Paulo Maia, Lucas Vieira, Matheus Chagas, Yijun Yu, Andrea Zisman and Bashar Nuseibeh
- 16:40 Better Development of Safety Critical Systems: Chinese High Speed Railway System Development Experience Report (Industry Showcase)
Zhiwei Wu, Jing Liu and Xiang Chen
- 17:00 Active Hotspot: An Issue-Oriented Model to Monitor Software Evolution and Degradation (Technical Track)
Qiong Feng, Yuanfang Cai, Rick Kazman, Di Cui, Ting Liu and Hongzhou Fang
- 17:20 Automated Trainability Evaluation for Smart Software Functions (Technical Track/New Idea)
Ilias Gerostathopoulos, Stefan Kugele, Christoph Segler, Tomas Bures and Alois Knoll
- 17:30 Lancer: Your Code Tell Me What You Need (Demonstration)
Shufan Zhou, Beijun Shen and Hao Zhong

Breakout Session: Emerging Domains

Thu, Nov 14, 16:00 - 17:40, Cortez 1

Session Chair: Joshua Garcia

- 16:00 Improving the Decision-Making Process of Self-Adaptive Systems by Accounting for Tactic Volatility (Technical Track)
Jeffrey Palmerino, Qi Yu, Travis Desell and Daniel Krutz
- 16:20 Learning-Guided Network Fuzzing for Testing Cyber-Physical System Defences (Technical Track)
Yuqi Chen, Chris Poskitt, Jun Sun, Sridhar Adepu and Fan Zhang
- 16:40 Uncertainty-wise Test Case Generation and Minimization for Cyber-Physical Systems (Journal First)
Man Zhang, Shaikat Ali and Tao Yue
- 17:00 Finding Trends in Software Research (Journal First)
George Mathew, Amritanshu Agrawal and Tim Menzies
- 17:20 XRaSE: Towards Virtually Tangible Software using Augmented Reality (Demonstration)
Rohit Mehra, Vibhu Saujanya Sharma, Vikrant Kaulgud and Sanjay Podder
- 17:30 MuSC: A Tool for Mutation Testing of Ethereum Smart Contract (Demonstration)
Zixin Li, Haoran Wu, Jiehui Xu, Xingya Wang, Lingming Zhang and Zhenyu Chen

Breakout Session: Untangling and Merging

Thu, Nov 14, 16:00 - 17:40, Cortez 2&3

Session Chair: Iftekhhar Ahmed

- 16:00 The Impact of Structure on Software Merging: Semistructured versus Structured Merge (Technical Track)
Guilherme Cavalcanti, Paulo Borba, Georg Seibt and Sven Apel
- 16:20 Semistructured Merge in JavaScript Systems (Technical Track)
Alberto Trindade Tavares, Paulo Borba, Guilherme Cavalcanti and Sergio Soares
- 16:40 CLCDSA: Cross Language Code Clone Detection using Syntactical Features and API Documentation (Technical Track)
Kawser Nafi, Tonny Shekha Kar, Banani Roy, Chanchal K. Roy and Kevin Schneider
- 17:00 B2SFinder: Detecting Open-Source Software Reuse in COTS Software (Technical Track)
Muyue Feng, Zimu Yuan, Feng Li, Gu Ban, Yang Xiao, Shiyang Wang, Qian Tang, He Su, Chendong Yu, Jiahuan Xu, Aihua Piao, Jingling Xue and Wei Huo
- 17:20 CoRA: Decomposing and Describing Tangled Code Changes for Reviewer (Technical Track)
Min Wang, Zeqi Lin, Yanzhen Zou and Bing Xie

— Friday, November 15 —

On Friday, coffee breaks are from 10:30-11:00 and 15:30-16:00 in Cortez Foyer/Kensington Terrace.
Lunch break is from 12:30-14:00 in Kensington Terrace.

Registration Desk

Fri, Nov 15, 08:00 - 10:00, North Park

SEI 2019: International Workshop on Software Engineering Intelligence

Fri, Nov 15, 09:00 - 17:30, Cortez 3

Organizers: Marouane Kessentini, Xin Yao, Kalyanmoy Deb

NJR 2019: Towards a Normalized Java Resource

Fri, Nov 15, 09:00 - 15:30, Cortez 1A

Organizers: Crista Lopes, Jens Palsberg

SEConfig 2019: International Workshop on Software Engineering for Infrastructure and Configuration Code

Fri, Nov 15, 09:00 - 17:30, Cortez 2

Organizers: Jürgen Cito, Mark Santolucito

EXPLAIN 2019: International Workshop on Explainable Software

Fri, Nov 15, 09:00 - 17:30, Cortez 1B

Organizers: Stefan Wagner, Barbara Paech, Jens Weber, Jan-Philipp Steghöfer, Matthias Tichy



Message from the Chairs

On behalf of the entire conference organizing committee, it is our great pleasure to welcome you to beautiful San Diego for the *34th IEEE/ACM International Conference on Automated Software Engineering (ASE 2019)*. The conference is the premier research forum for automated software engineering. Each year, it brings together researchers and practitioners from academia and industry to discuss foundations, techniques, and tools for automating the analysis, design, implementation, testing, and maintenance of large software systems.

We have a rich and diverse program for you with the latest innovations and visions in automated software engineering. Each day will start off with a keynote, followed by blended breakout sessions with technical research papers, experience reports, new idea papers, journal first papers, tool demos, and industry showcase talks. In addition, there will be poster sessions with tool demos, late breaking results, and the student research competition.

We are excited to have three excellent keynote speakers at the conference:

- Miryung Kim on “*Re-engineering Software Engineering for a Data-centric World*”,
- Yuanyuan (YY) Zhou on “*The Human Dimension of Cloud Computing*”, and
- Mathieu Nayrolles on “*Automated Debug & Profiling of AAA Games*”.

The core of the program are the papers from the main track. This track features the latest innovations in automated software engineering. The track has three types of papers: *Technical Research Papers* describe the latest research with careful validation of the claims; *Experience Papers* describe significant experiences in applying automated software engineering, especially in industry; and *New Idea Papers* describe novel research directions. The main track received 448 submissions. Of these, 11 were withdrawn by the authors or desk-rejected for violating formatting (mostly length) and double-blind reviewing guidelines. 437 papers entered the reviewing process (377 technical papers, 26 experience reports, and 34 new idea papers). Each paper received at least 3 reviews from members of the program committee (PC). Like last year, ASE used an online-only PC discussion, in which all papers were discussed electronically in the HotCRP platform. The online-only PC discussion allowed to scale the PC, which reduced the individual review load and followed the preferences of the majority of the PC.

All PC members engaged in the discussion, often deliberating benefits and problems in depth. In addition to at least 3 reviewers for each paper, one more PC member oversaw each discussion and summarized the discussion and outcome in a meta-review. ASE adopted a "heavy-weight" double-blind reviewing process, in which papers were submitted and reviewed as double-blind, and authors' identities were never revealed during the reviewing process.

As the outcome of the online discussions, from 437 reviewed submissions, we accepted 91 papers (overall acceptance rate of 20.8%): 77 technical research papers, 8 experience reports (1 reclassified from a technical research submission), and 6 new idea papers (4 reclassified from technical research submissions). We use a single acceptance rate for all types of submissions because all papers were submitted to one track with one PC, and some papers were reclassified. All reclassified papers and some additional papers were conditionally accepted, and therefore checked again by a shepherd designated by the PC before the final acceptance. Authors and shepherds had the choice of fully blind or fully non-blind shepherding, where shepherding was fully blind if either party requested that.

We invited several PC members to serve as Reliable Rapid Response Reviewers (RRRRs). Such reviewers received a reduced initial load but agreed to be available to review some papers on very short notice. 13 PC members accepted the invitation and received an initial load of 10 papers rather than the normal load of 14 papers. In the end, each RRRR reviewed between 11 and 13 papers. We found the availability of RRRRs to be very helpful, and we strongly encourage future chairs to consider assigning some PC members as RRRRs.

We could not conclude the description of the reviewing process without giving a big THANK you to all PC members, as well as to additional reviewers (listed in the proceedings). With such a large number of submissions, they had to carry out an enormous amount of work in a very short time (nine weeks for reviewing and two weeks for discussions). We would also like to thank Robert Feldt for his script for checking PDFs for violations of the double-blind reviewing guidelines, and Eddie Kohler for his outstanding support for the HotCRP reviewing system.

The following six papers were selected as **ACM SIGSOFT Distinguished Papers**.

- *Automatic Generation of Pull Request Descriptions*, by Zhongxin Liu, Xin Xia, Christoph Treude, David Lo, Shanping Li
- *Experience Paper: Search-based Testing in Automated Driving Control Applications*, by Christoph Gladisch, Thomas Heinz, Christian Heinzemann, Jens Oehlerking, Anne von Vietinghoff, Tim Pfitzer
- *History-Guided Configuration Diversification for Compiler Test-Program Generation*, by Junjie Chen, Guancheng Wang, Dan Hao, Yingfei Xiong, Hongyu Zhang, Lu Zhang
- *Performance-Boosting Sparsification of the IFDS Algorithm with Applications to Taint Analysis*, by Dongjie He, Haofeng Li, Lei Wang, Haining Meng, Hengjie Zheng, Jie Liu, Shuangwei Hu, Lian Li, Jingling Xue
- *Regexes are Hard: Decision-making, Difficulties, and Risks in Programming Regular Expressions*, by Louis G. Michael IV, James Donohue, James C. Davis, Dongyoon Lee, Francisco Servant
- *Wuji: Automatic Online Combat Game Testing Using Evolutionary Deep Reinforcement Learning*, by Yan Zheng, Xiaofei Xie, Ting Su, Lei Ma, Jianye Hao, Zhaopeng Meng, Yang Liu, Ruimin Shen, Yinfeng Chen, Changjie Fan

ASE has a long tradition of tool demos. The goal of the **Tool Demonstration** track is to excite the software engineering community about new advances in our field through compelling demonstrations that help advance research and practice. Out of the 67 submissions, 36 cutting-edge tools were selected. The tools will be showcased in the breakout sessions and interactive sessions where authors will demonstrate their tools and discuss them with attendees. We would like to thank the tool demo chairs Claire Le Goues and David Lo for selecting a great demo program. Don't miss the opportunity to get your hands on these tools.

In addition to the traditional submission tracks (main track, tool demonstrations), we introduced several new tracks to the program:

- The **ACM Student Research Competition** offers undergraduate and graduate students a unique forum to showcase their research, exchange ideas, and improve their communication skills while competing for prizes. Out of 21 submissions, 13 were selected to compete at ASE and received

travel support to attend the conference. The competition is sponsored by Microsoft Research. We would like to thank the SRC chairs Jin L.C. Guo and Jie M. Zhang for organizing this track.

- The **Industry Showcase** solicits talk proposals that present practitioner-oriented topics and are relevant and interesting to both industrial and academic attendees. The goal was to engage practitioners in the conference without requiring them to write a full technical paper. Out of 13 submitted talk proposals, 6 talks were selected for presentation at the conference. We would like to thank Jianmei Guo, ViQkrant Kaulgud, and Hitesh Sajani for organizing this track.
- The **Late Breaking Results** provide a venue to get early feedback on research before having to evaluate or even build a tool, idea, algorithm, or experiment. Late breaking results were solicited through two channels: direct submissions (2 out of 7 accepted) and invitations (papers that were rejected by the main track but received enough support as a late breaking result). In total, 18 late breaking results will be presented at ASE in a poster session. Late breaking results are not part of the ASE proceedings. We would like to thank Dan Hao and Baishakhi Ray for organizing this track.

We expanded the **Journal First program** that was introduced at previous ASE conferences by including additional journals and reaching out to authors of eligible papers, encouraging them to submit. The track includes presentations for papers published recently in prestigious software engineering journals. The goal is to enrich the ASE program as well as offer the authors an opportunity to speak to the community. The journal first manuscripts will not be part of the ASE proceedings as they are published through the journals. The following journals participated in the Journal First track (other journals were considered on a case-by-case basis):

- ACM Transactions on Software Engineering and Methodology (ACM TOSEM)
- Automated Software Engineering Journal (ASE)
- Empirical Software Engineering Journal (EMSE)
- IEEE Transactions on Software Engineering (IEEE TSE)
- Information and Software Technology (IST)
- Journal of Systems and Software (JSS)

The Journal First track received more submissions than we anticipated and had the capacity to accommodate. To select the presentations, each submission was rated by at least seven experts from the Journal First Committee on the relevance to automated software engineering and the expected audience interest. Out of the 44 submissions, 23 journal first presentations were selected for presentation at the conference. We would like to thank Elisabetta Di Nitto and Xin Peng for organizing this track.

Workshops provide opportunities for exchanging views, advancing ideas, and discussing preliminary results in various areas of software engineering. We are proud to host the following seven workshops at ASE 2019:

- 2nd International Workshop on Advances in Mobile App Analysis (A-Mobile). Organizers: Li Li, Guozhu Meng, Jacques Klein and Sam Malek
- 1st International Workshop on Explainable Software (EXPLAIN). Organizers: Stefan Wagner, Matthias Tichy, Jan-Philipp Steghöfer, Barbara Paech and Jens Weber
- Java Pathfinder Workshop 2019 (JPF). Organizers: Cyrille Valentin Artho and Quoc-Sang Phan
- Towards a Normalized Java Resource (NJR). Organizers: Cristina Lopes and Jens Palsberg
- 2nd International Workshop on Software Security from Design to Deployment (SEAD). Organizers: Mehdi Mirakhorli, Matthias Galster and Laurie Williams

- 1st International Workshop on Software Engineering Intelligence (SEI). Organizers: Marouane Kessentini, Xin Yao and Kalyanmoy Deb
- 1st International Workshop on Software Engineering for Infrastructure and Configuration Code (SEConfig). Organizers: Jürgen Cito and Mark Santolucito

We would like to thank the organizers of all workshops for their efforts! We also would like to thank the Workshops Chairs Reid Holmes and Sarah Nadi for putting together such a strong workshop program.

The **Celebration of Automated Software Engineering** brings together ASE PC members and other researchers who want to get to know each other, learn about each other's current projects, learn how others think about technical work, and consider future directions for software engineering research and practice. The program will combine talks and interactive discussions. The goal of this event is to replace some of the interactions that are lost with online-only discussion instead of a physical PC meeting and to provide a forum for the community to network with each other, have meaningful interactions, and learn how others think about technical work. The celebration will have technical talks as well as panels on reviewer experience and challenges and opportunities for the software engineering community. We would like to thank Joshua Garcia and Julia Rubin for organizing this event.

ASE hosts an **NSF-sponsored Workshop on Deep Learning and Software Engineering** (invitation only). This workshop brings together an international group of researchers and practitioners who work at the intersection of software engineering and deep learning for an intensive period of discussion. The outcome of the workshop will be a report to the research community. We would like to thank Denys Poshyvanyk and Baishakhi Ray for organizing this workshop and the National Science Foundation for its support and co-locating with ASE.

ASE has several student programs in addition to the ACM Student Research Competition. The **Doctoral Symposium** provides a supportive setting in which Ph.D. students have an opportunity to present and discuss their research with other researchers in the ASE community. Of the 14 submissions, 9 were selected for presentation at the symposium. We would like to thank Myra Cohen and Zhenchang Xing for organizing the doctoral symposium.

Student volunteers play a crucial role in ensuring the success of any conference. They help with many things from registration to local support. Being a student volunteer is an excellent opportunity to meet, interact, and network with leading academic and industrial researchers and practitioners and other students from all over the world. The **Student Volunteer Program** received 41 applications, and 17 students were selected as student volunteers. The volunteer program was supported by Amazon Web Services. We would like to thank Song Wang and Yongjie Zheng for organizing the student volunteer program and all the student volunteers for their work during the conference.

There are several **Travel Support** programs to help defray the costs of attending ASE besides the student volunteer program. The U.S. National Science Foundation (NSF) has generously provided \$15,000 support for student participation in ASE 2019. The SIGSOFT CAPS program provided travel, registration, and childcare support for students and researchers. The total award amount in the student category for ASE 2019 is \$11,800. In addition, the CAPS Professional Program was launched at ASE 2019 and nine awards totaling \$6,600 were provided. We would like to thank Nan Niu for administering the CAPS program. SIGAI also provides scholarships to students to participate in SIGAI-sponsored conferences such as ASE.

ASE 2019 has a strong focus on **Diversity and Inclusion (D&I)**. We would like to thank the Diversity, Inclusion, and Belonging Co-Chairs Andrew Begel and Brittany Johnson for putting together a great lineup of D&I activities. The D&I activities are supported by Microsoft Research.

- First-Timer's Lunch (Day 1). ASE set aside a section of tables at lunch for first-time conference attendees to meet one another and help to create a cohort peer group that can socially support one another throughout the conference and in future years.
- Local College Student Visits (Day 1). To inspire college students who may be interested in the software engineering research field, we invite local college faculty and their students to come to the first day's afternoon sessions of ASE to attend talks, meet senior members of the ASE community, and hear from an inspiring speaker about the exciting possibilities that await them if they choose to go to graduate school.
- Ad hoc affinity group dinner meetups (Day 1). Volunteers from various affinity groups will gather after the opening conference reception and invite other interested members of the ASE community to come out to dinner as groups.
- Women's Breakfast (Day 2). Women at ASE are invited to meet up and talk over breakfast at the conference hotel.
- Diversity and Inclusion Lunch (Day 2). Tables are set aside at lunch for various affinity groups to sit together and talk about issues relevant to their experiences in software engineering and conference activities. Each table is "hosted" by a senior member of the community who also belongs to that affinity group.
- Evening D&I Session – Karaoke (Day 2). After the conference banquet, women and underrepresented minorities are invited to a karaoke social event where they can get together, talk about issues and experiences, and vent any intense feelings about software engineering during a fun session of karaoke.

ASE also has a **Faculty Mentorship Roundtable** program, which aims to connect junior SE faculty with more senior mentors, and with peers at similar stage of their career. It is intended to provide a low-pressure atmosphere to foster building one's support group and mentorship. We would like to thank Danny Dig for organizing this program at ASE and many other conferences!

Many people contributed to making ASE 2019 a success. In particular, we would like to thank:

- The Finance Chair Brendan Murphy for the support throughout planning the conference.
- The Proceedings Chair Katja Kevic for interacting with the proceedings production company and for the help with putting together the proceedings.
- The Publicity Chair Xin Ye for the putting together publicity materials and the great publicity efforts for the conference.
- The Social Media Chairs André N. Meyer and Yixue Zhao for the great presence on social media. They also launched the ASE blog: <https://medium.com/ase-conference>.
- The Sponsorship Chair Meiyappan Nagappan who helped receiving generous contributions from many organizations and companies, which helped to keep the registration rates low and enabled many of the initiatives at the conference.
- The Submissions Chair Michael Vierhauser who helped with the complexity of the submission process.
- The Web Chair Wenyu Wang for keeping the ASE website always up-to-date and maintaining the online program.

We would like to thank the sponsors of ASE 2019: the IEEE Computer Society through its Technical Council on Software Engineering (TCSE) and the ACM through its Special Interest Group on Artificial Intelligence (SIGAI) and Special Interest Group on Software Engineering (SIGSOFT). We are very grateful to the fantastic administrative support provided by Carmen Saliba and Daria Shypova from the IEEE Computer Society. We would also like to thank Marie Trinh and Patrick Kellenberger for the smooth registration support and Lisa O'Conner for producing the proceedings.

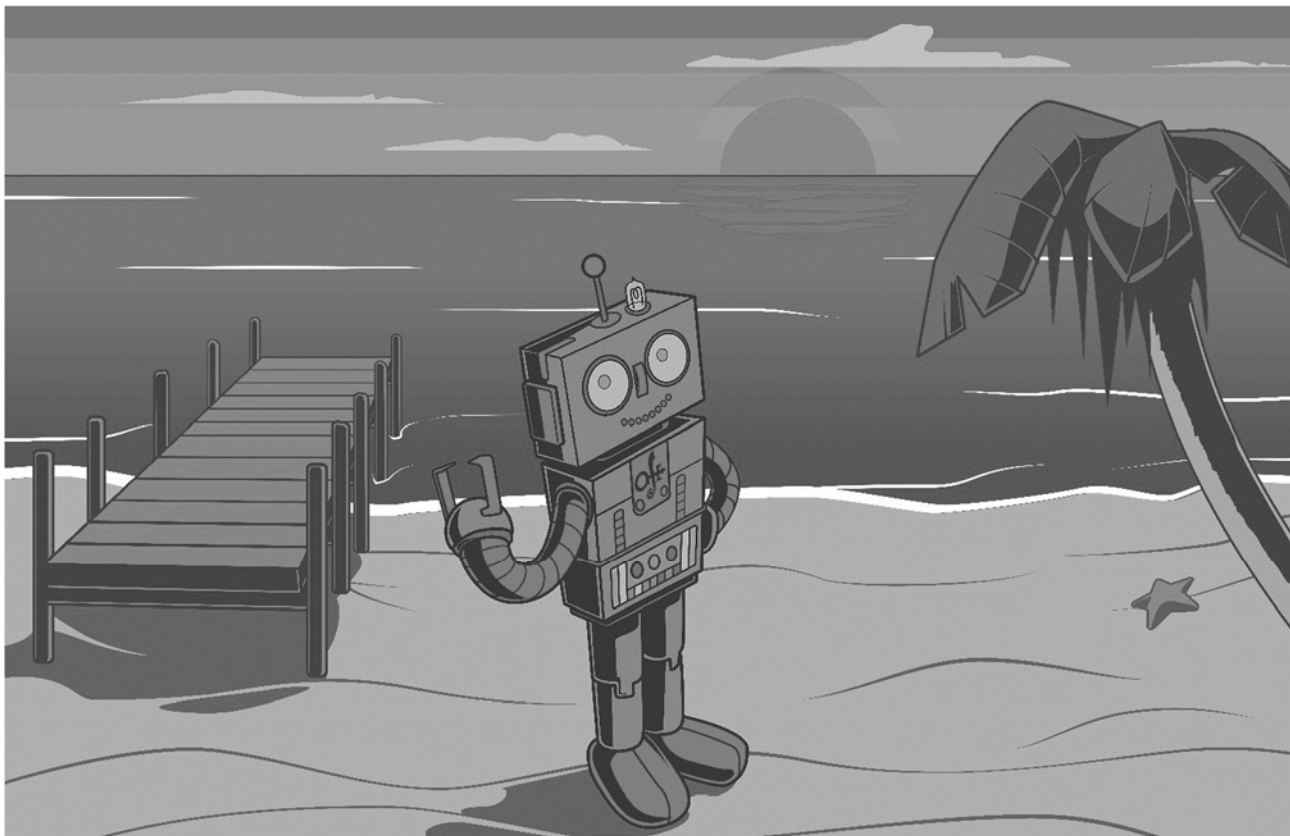
Finally, we would like to deeply thank our corporate supporters for their generous support as the success of academic conferences depends heavily on financial contributions: our Diamond-level supporters Amazon Web Services, Huawei, Microsoft, and the National Science Foundation; our Platinum-level supporters Accenture and NASA; our Gold-level supporters Fujitsu and Mootest; and our Sunshine supporter Google. Thank you!

The success of a conference heavily depends on its attendees. As of September 29, the conference has 320+ registrations during the entire ASE week (40% are students). For 70% of the attendees, it is the first ASE conference that they are attending. Thank you! We hope that you will enjoy the program, and have plenty of opportunities for networking, including thought-provoking and inspiring discussions.

Have a great time in San Diego!

Thomas Zimmermann
ASE 2019 General Chair

Julia Lawall and Darko Marinov
ASE 2019 Program Co-Chairs



A huge thanks to our fantastic ASE 2019 volunteers!

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The student volunteer program is sponsored by AWS Automated Reasoning Group.

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35th IEEE/ACM International Conference on Automated Software Engineering, Melbourne, Australia, 21st-25th September 2020

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Important Dates

Research Papers

Abstract: Apr 10, 2020

Paper: Apr 17, 2020

Notification: Jul 03, 2020

Tool Demonstrations

Submission: May 29, 2020

Notification: Jul 03, 2020

Doctoral Symposium

Submission: Jun 05, 2020

Notification: Jul 10, 2020

Workshops

Submission: Feb 21, 2020

Notification: Mar 06, 2020



Photos: Melbourne city (left) including Arts Centre Melbourne - Conference venue;
Hardware Lane (top right): Credit Robert Blackburn; Flinders Station (bottom right): Credit Ilya Genkin

Thanks to our sponsors and supporters!

