22nd ACM SIGSOFT International Symposium on Foundations of Software Engineering
November 16–21, 2014, Hong Kong

Program Brochure
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Message from the Chairs

On behalf of the entire organizing team of FSE 2014, it is our great pleasure to welcome you to Hong Kong for the 22nd ACM SIGSOFT International Symposium on the Foundations of Software Engineering. The conference brings together researchers, practitioners, and educators to present and discuss the most recent innovations, trends, experiences, and challenges in software engineering. This year’s program continues the great tradition of previous FSE meetings by being rich and exciting, but the location of the conference is particularly noteworthy as it is the first time that this major international software engineering conference is being held outside North America. Hong Kong is renowned as a lively city with a beautiful harbor and landscape, and is famous for its finance, shopping, and gourmet cuisine, blending Eastern and Western cultures.

FSE 2014 also received a record-high number of submissions, as the research track attracted 280 submissions from Asia, North America, Europe, South America, Australia, and Africa. After extensive virtual discussions, followed by a two-day face-to-face meeting, the Program Committee of 33 members accepted 61 papers that cover a variety of topics, including software testing, empirical software engineering, program analysis, software evolution and maintenance, human and social factors, and formal methods. Among those, six papers received an ACM SIGSOFT Distinguished Paper Award.

For FSE 2014, we encouraged authors to provide artifacts, such as tools or data sets, that would allow others to replicate, compare to, or extend the authors’ work. The authors of 25 accepted papers provided artifacts that were then evaluated by the Artifact Evaluation Committee, chaired by Antonio Carzaniga and Prem Devanbu. Among these submissions, 15 artifacts passed the selection—these papers are suitably marked so that you can recognize them.

The FSE 2014 program offers more than just the research track. It includes a keynote speech by Monica S. Lam and two invited award talks by Alexander L. Wolf and Magne Jørgensen. It also includes: a Tool Demonstrations session, in which researchers will present state-of-the-art tools; a Student Research Competition, in which a set of selected graduate and undergraduate students will present their research work; a Visions and Challenges session, organized in cooperation with the Commuting Community Consortium, that will present visionary ideas and long term challenges and opportunities in software engineering research; and perspectives from industry that will discuss the major software engineering issues encountered by the software industry.

FSE 2014 also features eight co-located workshops and symposiums on a set of important topics: advanced modularization techniques (AOAsia/Pacific); context in software development (CSD); crowd-based software development methods and technologies (CrowdSoft); innovative software development methodologies and practices (InnoSWDev); Internetware, software development lifecycle for mobile (DeMobile); software engineering educators (SEES); and social software engineering (SSE). We thank the organizers of these co-located events for their vision and their help in making FSE successful.

Besides workshops and symposiums, the pre-conference activities include a memorial event for Mary Jean Harrold, a friend, colleague, and top software engineering researcher who passed away on September 19, 2013. The pre-conference activities also include a doctoral symposium featuring ten students and eight tutorials to discuss recent advances in software engineering, namely: the use of software analytics to assist software development; transitioning privacy from science to practice; engineering secure software; the use of symbolic techniques for program debugging and repair; automated string analysis techniques; developing cyberphysical system software; applying software engineering to cloud applications; and the use of social media.
Many people made this great event possible, so we apologize in advance if we do not mention everyone by name. We extend a special thank to the Program Committee members, who worked extremely hard to review the many submissions, discussed them extensively online, and flew to Hyderabad, India for the physical PC meeting. We are also extremely thankful to the following people: Amy Li and Yvette Lui, for solving many of the conference’s local logistics problems; Andreas Follner, for his great help in setting up the online registration system; Wilma Shen, for letting the high-school students of Renaissance College in Hong Kong help our delegates with transportation; Chang Xu, for his help in liaising with financial supporters; Farrah Khan, for her help in coordinating FSE 2014; the Hong Kong Science Park Management, for letting us use their conference facilities at a discount; and Pankaj Jalote and Vasudeva Varma for helping with the logistics of the PC meeting in Hyderabad.

We would like to acknowledge ACM for the sponsorship of FSE 2014 through its Special Interest Group on Software Engineering (SIGSOFT). We also deeply thank our patrons CVIC SE, NSF, Microsoft Research, Huawei, Neusoft, Siemens, Yonyou, The Hong Kong University of Science and Technology, Google, Radica, Samsung Research America, IBM Research, TCL, and CCC for their generous financial support. With this sponsorship, financial support, and many contributions from members of the software engineering community, we are happy to present to you an exciting and rich program with ideas that we are sure will have great impact and will foster progress in software engineering worldwide.

FSE 2014 has a record-high number of registrations: 342 from 26 countries or regions (as of the second week of October 2014). The majority of these registrations are from Asia (54%), North America (26%), and Europe (18%). About 35% of the registrations were made by students, and about 11% of non-student registrations were made by delegates from industry. Finally, we want to thank all of the conference attendees for contributing to making FSE 2014 a success. We hope that you will find the program interesting, thought-provoking, and inspiring, and that the conference will give you valuable opportunities to share ideas with researchers and practitioners from the vibrant software engineering community.

Shing-Chi Cheung, Conference Chair  
Alessandro Orso and Margaret-Anne Storey, Program Chairs
FSE 2014 Organization

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Qirun Zhang
Sai Zhang
Program for FSE

Monday, November 17

**Doctoral Symposium**
Mon, Nov 17, 09:00 – 10:00, Meeting Room 4

**Invited Talk 1**
Andreas Zeller

**Tutorial**
Mon, Nov 17, 09:00 – 10:30, Hall 1

Engineering Privacy and the Challenges of Transitioning Science to Practice
Travis Breaux  
(CMU)

**Tutorial**
Mon, Nov 17, 09:00 – 10:30, Hall 2

Software Analytics: Achievements and Challenges
Dongmei Zhang and Tao Xie  
(MSR; NCSU)

**Doctoral Symposium**
Mon, Nov 17, 10:00 – 10:30, Meeting Room 4

Diagnose Crashing Faults on Production Software
Rongxin Wu  
(Hong Kong University of Science and Technology, China)

**Doctoral Symposium**
Technical Presentations 2
Mon, Nov 17, 11:00 – 12:30, Meeting Room 4

Integrating Approaches for Feature Implementation
Benjamin Behringer  
(University of Luxembourg, Luxembourg; htw saar, Germany)

Numerical Program Analysis and Testing
Zheng Gao  
(University College London, UK)

Traceability and Model Checking to Support Safety Requirement Verification
Shuanglong Kan  
(Nanjing University of Aeronautics and Astronautics, China)

Dealing with Uncertainty in Verification of Nondeterministic Systems
Yanilet R. Serrano Llerena  
(National University of Singapore, Singapore)

**Tutorial**
Mon, Nov 17, 11:00 – 12:30, Hall 1

Engineering Secure Software: On The Many Ways You Should Be Breaking Your Product
Andy Meneely  
(RIT)

**Tutorial**
Mon, Nov 17, 11:00 – 12:30, Hall 2

String Analysis
Tevfik Bultan, Fang Yu, and Muath Alkhalaf  
(UCSB; NCUT; KSU)
Doctoral Symposium
Technical Presentations 3
Mon, Nov 17, 14:00 – 15:30, Meeting Room 4

Static Analysis Driven Performance and Energy Testing
Abhijeet Banerjee  (National University of Singapore, Singapore)

Autonomous Compliance Monitoring of Non-functional Properties
Marc Brünink  (National University of Singapore, Singapore)

Detecting, Isolating, and Enforcing Dependencies among and within Test Cases
Jonathan Bell  (Columbia University, USA)

Improving the Software Testing Skills of Novices during Onboarding through Social Transparency
Raphael Pham  (Leibniz Universität Hannover, Germany)

Tutorial
Mon, Nov 17, 14:00 – 15:30, Hall 1
Symbolic Techniques for Program Debugging and Repair
Abhik Roychoudhury and Satish Chandra  (NUS; Samsung)

Tutorial
Mon, Nov 17, 14:00 – 15:30, Hall 2
Engineering Cyberphysical System Software
Luca Mottola  (Politecnico di Milano; SICS)

Doctoral Symposium
Mon, Nov 17, 16:00 – 16:30, Meeting Room 4

Minimizing Software Conflicts through Proactive Detection of Conflicts and Task Scheduling
Bakhtiar Khan Kasi  (University of Nebraska-Lincoln, USA)

Tutorial
Mon, Nov 17, 16:00 – 17:30, Hall 1
Social Media and Science 2.0
Felienne Hermans  (TU Delft)

Tutorial
Mon, Nov 17, 16:00 – 17:30, Hall 2
Software Engineering for Cloud Applications
Mladen A. Vouk  (NCSU)

Doctoral Symposium
Mon, Nov 17, 16:30 – 17:30, Meeting Room 4

Invited Talk 2
David Rosenblum
Plenary
Tue, Nov 18, 09:00 – 09:20, Auditorium

Message from the Chairs
Shing-Chi Cheung, Alessandro Orso, and Margaret-Anne Storey  (Hong Kong University of Science and Technology, China; Georgia Institute of Technology, USA; University of Victoria, Canada)

Award Talk
Tue, Nov 18, 09:20 – 10:20, Auditorium

From Software Engineering to Software Systems (Invited Talk)
Alexander L. Wolf  (Imperial College London, UK)

Morning Break
Tue, Nov 18, 10:20 – 10:40, Pre-function Hall

Main Research
Helping and Understanding Developers
Tue, Nov 18, 10:40 – 12:20, Auditorium
Chair: Martin Robillard

Developers’ Code Context Models for Change Tasks
Thomas Fritz, David C. Shepherd, Katja Kevic, Will Snipes, and Christoph Bräunlich  (University of Zurich, Switzerland; ABB Research, USA)

Software Developers’ Perceptions of Productivity
André N. Meyer, Thomas Fritz, Gail C. Murphy, and Thomas Zimmermann  (University of Zurich, Switzerland; University of British Columbia, Canada; Microsoft Research, USA)

Enablers, Inhibitors, and Perceptions of Testing in Novice Software Teams
Raphael Pham, Stephan Kiesling, Olga Liskin, Leif Singer, and Kurt Schneider  (Leibniz Universität Hannover, Germany; University of Victoria, Canada)

Feedback Generation for Performance Problems in Introductory Programming Assignments
Sumit Gulwani, Ivan Radiček, and Florian Zuleger  (Microsoft Research, USA; Vienna University of Technology, Austria)

Main Research
Debugging and Refactoring
Tue, Nov 18, 10:40 – 12:20, Hall 4-7
Chair: Satish Chandra

Test Case Purification for Improving Fault Localization
Jifeng Xuan and Martin Monperrus  (INRIA, France; University of Lille, France)

Automatically Generated Patches as Debugging Aids: A Human Study
Yida Tao, Jindae Kim, Sunghun Kim, and Chang Xu  (Hong Kong University of Science and Technology, China; Nanjing University, China)

A Foundation for Refactoring C with Macros
Jeffrey L. Overbey, Farnaz Behrang, and Munawar Hafiz  (Auburn University, USA)

Vector Abstraction and Concretization for Scalable Detection of Refactorings
Narcisa Andreea Milea, Lingxiao Jiang, and Sian-Cheng Khoo  (National University of Singapore, Singapore; Singapore Management University, Singapore)

Lunch
Tue, Nov 18, 12:20 – 13:30, Happiness Cuisine
FlowTwist: Efficient Context-Sensitive Inside-Out Taint Analysis for Large Codebases
Johannes Lerch, Ben Hermann, Eric Bodden, and Mira Mezini (TU Darmstadt, Germany; Fraunhofer SIT, Germany)

ORBS: Language-Independent Program Slicing
David Binkley, Nicolas Gold, Mark Harman, Syed Islam, Jens Krinke, and Shin Yoo (Loyola University Maryland, USA; University College London, UK)

JSAI: A Static Analysis Platform for JavaScript
Vineeth Kashyap, Kyle Dewey, Ethan A. Kuefner, John Wagner, Kevin Gibbons, John Sarracino, Ben Wiedermann, and Ben Hardekopf (University of California at Santa Barbara, USA; Harvey Mudd College, USA)

A Path-Sensitively Sliced Control Flow Graph
Joxan Jaffar and Vijayaraghavan Murali (National University of Singapore, Singapore)

Let’s Talk About It: Evaluating Contributions through Discussion in GitHub
Jason Tsay, Laura Dabbish, and James Herbsleb (Carnegie Mellon University, USA)

A Large Scale Study of Programming Languages and Code Quality in Github
Baishakhi Ray, Daryl Posnett, Vladimir Filkov, and Premkumar Devanbu (University of California at Davis, USA)

Mining Preconditions of APIs in Large-Scale Code Corpus
Hoan Anh Nguyen, Robert Dyer, Tien N. Nguyen, and Hridesh Rajan (Iowa State University, USA)

Automatic Mining of Specifications from Invocation Traces and Method Invariants
Ivo Krka, Yuriy Brun, and Nenad Medvidovic (Google, Switzerland; University of Massachusetts, USA; University of Southern California, USA)

Afternoon Break
Tue, Nov 18, 15:10 – 15:30, Pre-function Hall

Countercexample Guided Abstraction Refinement of Product-Line Behavioural Models
Maxime Cordy, Patrick Heymans, Axel Legay, Pierre-Yves Schobbens, Bruno Davagne, and Martin Leucker (University of Namur, Belgium; INRIA, France; University of Lübeck, Germany)

Powering the Static Driver Verifier using Corral
Akash Lal and Shaz Qadeer (Microsoft Research, India; Microsoft Research, USA)

Verifying CTL-Live Properties of Infinite State Models using an SMT Solver
Amirhossein Vakili and Nancy A. Day (University of Waterloo, Canada)

Efficient Runtime-Enforcement Techniques for Policy Weaving
Richard Joiner, Thomas Reps, Somesh Jha, Mohan Dhawan, and Vinod Ganapathy (University of Wisconsin-Madison, USA; GrammaTech, USA; IBM Research, India; Rutgers University, USA)

Techniques for Improving Regression Testing in Continuous Integration Development Environments
Sebastian Elbaum, Gregg Rothermel, and John Penix (University of Nebraska-Lincoln, USA; Google, USA)

Balancing Trade-Offs in Test-Suite Reduction
August Shi, Alex Gyori, Milos Gligoric, Andrey Zaytsev, and Darko Marinov (University of Illinois at Urbana-Champaign, USA)

Identifying the Characteristics of Vulnerable Code Changes: An Empirical Study
Aniangshu Bosu, Jeffrey C. Carver, Munawar Hafiz, Patrick Hilley, and Derek Janni (University of Alabama, USA; Auburn University, USA; Providence College, USA; Lewis & Clark College, USA)
Tool Demonstrations
Tue, Nov 18, 17:15 – 18:00, Auditorium

Demo papers’ lightning talks

Tsmart-GalsBlock: A Toolkit for Modeling, Validation, and Synthesis of Multi-clocked Embedded Systems
Yu Jiang, Hehua Zhang, Huafeng Zhang, Xinyan Zhao, Han Liu, Chengnian Sun, Xiaoyu Song, Ming Gu, and Jiaguang Sun (Tsinghua University, China; University of California at Davis, USA)

A Tool Suite for the Model-Driven Software Engineering of Cyber-Physical Systems
Stefan Dziwok, Christopher Gerking, Steffen Becker, Sebastian Thiele, Christian Heinzemann, and Uwe Pohlmann (University of Paderborn, Germany; Fraunhofer IPT, Germany)

XMLMate: Evolutionary XML Test Generation
Nikolas Havrikov, Matthias Höschele, Juan Pablo Galeotti, and Andreas Zeller (Saarland University, Germany)

CHOReOSynt: Enforcing Choreography Realizability in the Future Internet
Marco Autili, Davide Di Ruscio, Amleto Di Salle, and Alexander Perucci (University of L’Aquila, Italy)

RaPiD: A Toolkit for Reliability Analysis of Non-deterministic Systems
Lin Gui, Jun Sun, Yang Liu, Truong Khanh Nguyen, and Jin Song Dong (National University of Singapore, Singapore; Singapore University of Technology and Design, Singapore; Nanyang Technological University, Singapore)

Aalta: An LTL Satisfiability Checker over Infinite/Finite Traces
Jianwen Li, Yinbo Yao, Geguang Pu, Lijun Zhang, and Jifeng He (East China Normal University, China; Institute of Software at Chinese Academy of Sciences, China)

Omen+: A Precise Dynamic Deadlock Detector for Multithreaded Java Libraries
Malavika Samak and Murali Krishna Ramanathan (Indian Institute of Science, India)

Archie: A Tool for Detecting, Monitoring, and Preserving Architecturally Significant Code
Mehdi Mirakhorli, Ahmed Fakhry, Artem Grechko, Matteusz Wieloch, and Jane Cleland-Huang (Rochester Institute of Technology, USA; DePaul University, USA)

Linking Sketches and Diagrams to Source Code Artifacts
Sebastian Baltes, Peter Schmitz, and Stephan Diehl (University of Trier, Germany)

BumbleBee: A Refactoring Environment for Spreadsheet Formulas
Felienne Hermans and Danny Dig (Delft University of Technology, Netherlands; Oregon State University, USA)

RefDistiller: A Refactoring Aware Code Review Tool for Inspecting Manual Refactoring Edits
Everton L. G. Alves, Myoungkyu Song, and Miryung Kim (University of Texas at Austin, USA; Federal University of Campina Grande, Brazil; University of California at Los Angeles, USA)

Critics: An Interactive Code Review Tool for Searching and Inspecting Systematic Changes
Tianyi Zhang, Myoungkyu Song, and Miryung Kim (University of California at Los Angeles, USA; University of Texas at Austin, USA)

ConceptCloud: A Tagcloud Browser for Software Archives
Gillian J. Greene and Bernd Fischer (Stellenbosch University, South Africa)

Titan: A Toolset That Connects Software Architecture with Quality Analysis
Lu Xiao, Yuanfang Cai, and Rick Kazman (Drexel University, USA; University of Hawaii, USA)

BugLocalizer: Integrated Tool Support for Bug Localization
Ferdian Thung, Tien-Duy B. Le, Pavneet Singh Kochhar, and David Lo (Singapore Management University, Singapore)
Detecting and Preventing the Architectural Roots of Bugs
Lu Xiao  (Drexel University, USA)

Estimating the Effectiveness of Spectrum-Based Fault Localization
Shuo Song  (Nanjing University, China)

Managing Lots of Models: The FaMine Approach
David Wille  (TU Braunschweig, Germany)

Social Network Analysis in Open Source Software Peer Review
Xin Yang  (Nara Institute of Science and Technology, Japan)

Towards a Theory of Architectural Styles
Diego Marmsoler  (TU München, Germany)

Software Programmer Management: A Machine Learning and Human Computer Interaction Framework for Optimal Task Assignment
Harry Raymond Joseph  (TU München, Germany)

Wednesday, November 19

Omlet: A Revolution against Big-Brother Social Networks (Invited Talk)
Monica S. Lam  (Stanford University, USA)

With the wide-spread adoption of proprietary social networks like Facebook and mobile chat platforms like Wechat, we may be heading to a future where all our communication are monetized and our online transactions are mediated by monopolistic big-data companies. This talk describes a new anti-data monetization movement led by Omlet, an open messaging service and distributed computing platform that spun out of 4 years of research at Stanford University. With Omlet, (1) users can own their data and have them hosted on cloud services of their choice and (2) distributed "p2p webapps" enable phones and other internet of things to interact with each other without having its communication be monetized. Introduced in March 2014, Omlet is already seeing traction, as it is being distributed on millions of Android phones, by Asus and other yet-to-be-announced device makers. This paradigm shift to decentralized computation not only safeguards users' data privacy, it fosters open competition and innovation, and provides an efficient and scalable foundation to handle the billions of phones and devices. Software engineering researchers can help make this a reality by making distributed mobile app development on such a platform accessible.
Main Research
Improving Recommender Systems
Wed, Nov 19, 10:40 – 12:20, Auditorium
Chair: Nenad Medvidovic

On the Locality of Software
Zhaopeng Tu, Zhendong Su, and Premkumar Devanbu (University of California at Davis, USA)

Learning Natural Coding Conventions
Miltiadis Allamanis, Earl T. Barr, Christian Bird, and Charles Sutton (University of Edinburgh, UK; University College London, UK; Microsoft Research, USA)

How Should We Measure Functional Sameness from Program Source Code? An Exploratory Study on Java Methods
Yoshihiko Higo and Shinji Kusumoto (Osaka University, Japan)

The Plastic Surgery Hypothesis
Earl T. Barr, Yuriy Brun, Premkumar Devanbu, Mark Harman, and Federica Sarro (University College London, UK; University of Massachusetts, USA; University of California at Davis, USA)

Lunch
Wed, Nov 19, 12:20 – 13:30, Happiness Cuisine

Main Research
Self Adaptation and Repair / Program Analysis Applications
Wed, Nov 19, 13:30 – 15:10, Auditorium
Chair: Sebastian Uchitel

Search-Based Synthesis of Equivalent Method Sequences
Alberto Goffi, Alessandra Gorla, Andrea Mattavelli, Mauro Pezzè, and Paolo Tonella (University of Lugano, Switzerland; Saarland University, Germany; Fondazione Bruno Kessler, Italy)

Beyond the Rainbow: Self-Adaptive Failure Avoidance in Configurable Systems
Jacob Swanson, Myra B. Cohen, Matthew B. Dwyer, Brady J. Garvin, and Justin Firestone (University of Nebraska-Lincoln, USA)

Semantics-Based Obfuscation-Resilient Binary Code Similarity Comparison with Applications to Software Plagiarism Detection
Lannan Luo, Jiang Ming, Dinghao Wu, Peng Liu, and Sen-cun Zhu (Pennsylvania State University, USA)

Focus-Shifting Patterns of OSS Developers and Their Congruence with Call Graphs
Qi Xuan, Aaron Okano, Premkumar Devanbu, and Vladimir Filkov (University of California at Davis, USA; Zhejiang University of Technology, China)

Main Research
Concurrency and Parallelism
Wed, Nov 19, 10:40 – 12:20, Hall 4-7
Chair: W.K. Chan

Grail: Context-Aware Fixing of Concurrency Bugs
Peng Liu, Omer Tripp, and Charles Zhang (Wuhan University, China; IBM Research, USA; Hong Kong University of Science and Technology, China)

AI: A Lightweight System for Tolerating Concurrency Bugs
Mingxing Zhang, Yongwei Wu, Shan Lu, Shauxiang Qi, Jinglei Ren, and Weimin Zheng (Tsinghua University, China; University of Wisconsin-Madison, USA; University of Illinois at Urbana-Champaign, USA)

Retrofitting Concurrency for Android Applications through Refactoring
Yu Lin, Cosmin Radoi, and Danny Dig (University of Illinois at Urbana-Champaign, USA; Oregon State University, USA)

Sherlock: Scalable Deadlock Detection for Concurrent Programs
Mahdi Eslamimehr and Jens Palsberg (University of California at Los Angeles, USA)

How We Get There: A Context-Guided Search Strategy in Concolic Testing
Hyunnin Seo and Sung hun Kim (Hong Kong University of Science and Technology, China)

Solving Complex Path Conditions through Heuristic Search on Induced Polytopes
Peter Dinges and Gul Agha (University of Illinois at Urbana-Champaign, USA)

Statistical Symbolic Execution with Informed Sampling
Antonio Filieri, Corina S. Păsăreanu, Willem Visser, and Jaco Geldenhuys (University of Stuttgart, Germany; Carnegie Mellon University, USA; NASA Ames Research Center, USA; Stellenbosch University, South Africa)

SymJS: Automatic Symbolic Testing of JavaScript Web Applications
Guodong Li, Esben Andraesen, and Indradeep Ghosh (Fuji tsu Labs, USA; Aarhus University, Denmark)
Main Research
Software Documentation
Wed, Nov 19, 15:30 – 16:45, Auditorium
Chair: Jane Cleland-Huang

Selection and Presentation Practices for Code Example Summarization
Annie T. T. Ying and Martin P. Robillard (McGill University, Canada)

Mining Idioms from Source Code
Miltiadis Allamanis and Charles Sutton (University of Edinburgh, UK)

Automatic Generation of Release Notes
Laura Moreno, Gabriele Bavota, Massimiliano Di Penta, Rocco Oliveto, Andrian Marcus, and Gerardo Canfora (University of Texas at Dallas, USA; University of Sannio, Italy; University of Molise, Italy)

Main Research
Web Apps
Wed, Nov 19, 15:30 – 16:45, Hall 4-7
Chair: Luciano Baresi

Discovering Refactoring Opportunities in Cascading Style Sheets
Davood Mazinanian, Nikolaos Tsantalis, and Ali Mesbah (Concordia University, Canada; University of British Columbia, Canada)

SAFEWAPI: Web API Misuse Detector for Web Applications
SungGyeong Bae, Hyunghun Cho, Inho Lim, and Sukyoung Ryu (KAIST, South Korea; Samsung Electronics, South Korea)

Building Call Graphs for Embedded Client-Side Code in Dynamic Web Applications
Hung Viet Nguyen, Christian Kästner, and Tien N. Nguyen (Iowa State University, USA; Carnegie Mellon University, USA)

FSE Track
Student Research Competition Presentations
Wed, Nov 19, 16:45 – 17:30, Auditorium

Selected contributions will be presented.

SIGSOFT Townhall Meeting
Wed, Nov 19, 17:30 – 18:30, Pre-function Hall

Banquet
Wed, Nov 19, 19:30 – 22:00, Laguna Palace Restaurant
Thursday, November 20

FSE Track
Visions and Challenges
Thu, Nov 20, 09:00 – 10:20, Auditorium

Methodology and Culture: Drivers of Mediocrity in Software Engineering?
Marian Petre and Daniela Damian (Open University, UK; University of Victoria, Canada)

Known Unknowns: Testing in the Presence of Uncertainty
Sebastian Elbaum and David S. Rosenblum (University of Nebraska-Lincoln, USA; National University of Singapore, Singapore)

Speculative Reprogramming
Marc Palyart, Gail C. Murphy, Emerson Murphy-Hill, and Xavier Blanc (University of British Columbia, Canada; North Carolina State University, USA; University of Bordeaux, France)

A Variability Perspective of Mutation Analysis
Xavier Devroey, Gilles Perrouin, Maxime Cordy, Mike Papadakis, Axel Legay, and Pierre-Yves Schobbens (University of Namur, Belgium; University of Luxembourg, Luxembourg; INRIA, France)

Mining Micro-practices from Operational Data
Minghui Zhou and Audris Mockus (Peking University, China; University of Tennessee, USA; Avaya Labs, USA)

Achieving Lightweight Trustworthy Traceability
Jane Cleland-Huang, Mona Rahimi, and Patrick Mäder (DePaul University, USA; TU Ilmenau, Germany)

Software Maintenance like Maintenance in Other Engineering Disciplines
Gustavo Villavicencio (Universidad Católica de Santiago del Estero, Argentina)

Morning Break
Thu, Nov 20, 10:20 – 10:40, Pre-function Hall

Main Research
Architecture and Design
Thu, Nov 20, 10:40 – 12:20, Auditorium
Chair: James Herbsleb

Sketches and Diagrams in Practice
Sebastian Baltes and Stephan Diehl (University of Trier, Germany)

Architecture Challenges for Internal Software Ecosystems: A Large-Scale Industry Case Study
Klaus-Benedikt Schultis, Christoph Elsner, and Daniel Lohmann (Siemens, Germany; University of Erlangen-Nuremberg, Germany)

Variable-Specific Resolutions for Feature Interactions
Cecylia Bocovich and Joanne M. Atlee (University of Waterloo, Canada)

An Empirical Study on Program Comprehension with Reactive Programming
Guido Salvaneschi, Sven Amann, Sebastian Proksch, and Mira Mezini (TU Darmstadt, Germany; Lancaster University, UK)

Main Research
Mobile Apps
Thu, Nov 20, 10:40 – 12:20, Hall 4-7
Chair: Antonio Carzaniga

Apposcopy: Semantics-Based Detection of Android Malware through Static Analysis
Yu Feng, Saswat Anand, Isil Dillig, and Alex Aiken (University of Texas at Austin, USA; Stanford University, USA)

Detecting Energy Bugs and Hotspots in Mobile Apps
Abhijeet Banerjee, Lee Kee Chong, Sudipta Chattopadhyay, and Abhik Roychoudhury (National University of Singapore, Singapore; Linköping University, Sweden)

EvoDroid: Segmented Evolutionary Testing of Android Apps
Riyadh Mahmood, Nariman Mirzaei, and Sam Malek (George Mason University, USA)

Prioritizing the Devices to Test Your App on: A Case Study of Android Game Apps
Hammad Khalid, Meiyappan Nagappan, Emaad Shihab, and Ahmed E. Hassan (Queen’s University, Canada; Rochester Institute of Technology, USA; Concordia University, Canada)
## Lunch
**Thu, Nov 20, 12:20 – 13:30, Happiness Cuisine**

## Main Research
### Testing and Oracles
**Thu, Nov 20, 13:30 – 15:10, Auditorium**
Chair: Prem Devanbu

- **Improving Oracle Quality by Detecting Brittle Assertions and Unused Inputs in Tests**
  Chen Huo and James Clause (University of Delaware, USA)

- **On the Efficiency of Automated Testing**
  Marcel Böhme and Soumya Paul (Saarland University, Germany; National University of Singapore, Singapore)

- **An Empirical Analysis of Flaky Tests**
  Qingzhou Luo, Farah Hariri, Lamyaa Eloussi, and Darko Marinov (University of Illinois at Urbana-Champaign, USA)

- **Are Mutants a Valid Substitute for Real Faults in Software Testing?**
  René Just, Darioush Jalali, Laura Inozemtseva, Michael D. Ernst, Reid Holmes, and Gordon Fraser (University of Washington, USA; University of Waterloo, Canada; University of Sheffield, UK)

## Main Research
### Evolution and Maintenance
**Thu, Nov 20, 13:30 – 15:10, Hall 4-7**
Chair: Massimiliano Di Penta

- **No Issue Left Behind: Reducing Information Overload in Issue Tracking**
  Olga Baysal, Reid Holmes, and Michael W. Godfrey (Université de Montréal, Canada; University of Waterloo, Canada)

- **Panning Requirement Nuggets in Stream of Software Maintenance Tickets**
  Senthil Mani, Karthik Sankaranarayanan, Vibha Singhal Sinha, and Premkumar Devanbu (IBM Research, India; University of California at Davis, USA)

- **Learning to Rank Relevant Files for Bug Reports using Domain Knowledge**
  Xin Ye, Razvan Bunescu, and Chang Liu (Ohio University, USA)

- **Querying Sequential Software Engineering Data**
  Chengnian Sun, Haidong Zhang, Jian-Guang Lou, Hongyu Zhang, Qiang Wang, Dongmei Zhang, and Siau-Cheng Khoo (University of California at Davis, USA; Microsoft Research, China; National University of Singapore, Singapore)

## Afternoon Break
**Thu, Nov 20, 15:10 – 15:30, Pre-function Hall**

## FSE Session
### Perspectives from Industry
**Thu, Nov 20, 15:30 – 17:00, Auditorium**
Chair: Wolfgang Emmerich

- **Experiences Developing Tools for Developers (Invited Talk)**
  John Penix (Google, USA)

- **Are You Getting Traction? Tales from the Tech Transfer Trenches (Invited Talk)**
  Satish Chandra (Samsung Electronics, USA)

- **Data Hard with a Vengeance (Invited Talk)**
  Thomas Zimmermann (Microsoft Research, USA)

## Awards
**Thu, Nov 20, 17:00 – 17:15, Auditorium, Chair: Will Tracz**
Award Talk
Thu, Nov 20, 17:15 – 17:45, Auditorium
Chair: Will Tracz

Ten Years with Evidence-Based Software Engineering. What Is It? Has It Had Any Impact? What’s Next? (Invited Talk)
Magne Jørgensen (Simula Research Laboratory, Norway)

Closing
Thu, Nov 20, 17:45 – 18:00, Auditorium, Chair: Shing-Chi Cheung
Program for AOAsia

Sunday, November 16

Opening
Sun, Nov 16, 09:20 – 09:30, Hall 4

AOAsia/Pacific 2014
Sun, Nov 16, 09:30 – 10:30, Hall 4

Why Modularity Matters: Achieving Modular Reasoning about Concurrent Programs and its Implications
(Invited Talk)
Hridesh Rajan

Papers
Sun, Nov 16, 11:00 – 12:30, Hall 4

Toward Understanding How Developers Recognize Features in Source Code from Descriptions
Shinpei Hayashi, Takashi Ishio, Hiroshi Kazato, and Tsuyoshi Oshima  (Tokyo Institute of Technology, Japan; Osaka University, Japan; NTT DATA, Japan; NTT, Japan)

Uncertainty-Aware Architectural Interface
Naoyasu Ubayashi, Di Ai, Peiyuan Li, Yu Ning Li, Shintaro Hosoi, and Yasutaka Kamei  (Kyushu University, Japan)

Short Talks, Discussions, and Closing
Sun, Nov 16, 14:00 – 15:30, Hall 4
Program for CSD

Sunday, November 16

Context for Development
Sun, Nov 16, 09:00 – 10:30, Hall 5

Welcome and Icebreaker

Code Hunt: Context-Driven Interactive Gaming for Learning Programming and Software Engineering
Nikolai Tillmann, Jonathan de Halleux, Judith Bishop, Tao Xie, R. Nigel Horspool, and Daniel Perelman

Harnessing the Crowd: Decontextualizing Software Work
Thomas D. Latoza, W. Ben Towne, and André van der Hoek

A Canvas for Capturing Context of Agile Adoption
Pan-Wei Ng

Context in Code Search
Lee Martie and André van der Hoek

Towards Developer- and Task-Tailored Navigation Models
Katja Kevic and Thomas Fritz

Recommending Task Context: Automation Meets Crowd
Rafael Leano, Bakhtiar Kasi, and Anita Sarma

CSD 2014
Sun, Nov 16, 11:00 – 12:30, Hall 5

Theories of Context (Keynote)
James Herbsleb (Carnegie Melon University, USA)

Posters Revisited and Discussion
Sun, Nov 16, 14:00 – 15:30, Hall 5

Reflection, Discussion, and Conclusions
Sun, Nov 16, 16:00 – 17:30, Hall 5
Program for InnoSWDev

Sunday, November 16

New Paradigm
Sun, Nov 16, 09:40 – 10:30, Hall 6

Software Engineering for Multi-tenancy Computing Challenges and Implications
Jia Ru, John Grundy, and Jacky Keung  (Swinburne University of Technology, Australia; City University of Hong Kong, China)

Enhanced N-Version Programming and Recovery Block Techniques for Web Service Systems
Kuan-Li Peng, Chin-Yu Huang, Pin-Heng Wang, and Chao-Jung Hsu  (National Tsing Hua University, Taiwan; Alpha Networks, Taiwan; Altek, Taiwan)

Testing and Verification
Sun, Nov 16, 11:00 – 12:35, Hall 6

Model Checking Partial Software Product Line Designs
Yufeng Shi, Ou Wei, and Yu Zhou  (Nanjing University of Aeronautics and Astronautics, China)

Software Reliability Analysis Considering the Variation of Testing-Effort and Change-Point
Syuan-Zao Ke, Chin-Yu Huang, and Kuan-Li Peng  (Ability Enterprise, Taiwan; National Tsing Hua University, Taiwan)

Program Structure Aware Fault Localization
Heng Li, Yuzhen Liu, Zhenyu Zhang, and Jian Liu  (Institute of Software at Chinese Academy of Sciences, China; North China Electric Power University, China)

Toward a Methodology to Expose Partially Fixed Concurrency Bugs in Modified Multithreaded Programs
To Tsui, Shangru Wu, and W. K. Chan  (City University of Hong Kong, China)

System Development and Management
Sun, Nov 16, 14:00 – 15:30, Hall 6

Cloud-Based Support for Global Software Engineering: Potentials, Risks, and Gaps
Mohammed Al-qadhi and Jacky Keung  (City University of Hong Kong, China)

Scaling up Analogy-Based Software Effort Estimation: A Comparison of Multiple Hadoop Implementation Schemes
Passakorn Phannachitta, Jacky Keung, Akito Monden, and Kenichi Matsumoto  (NAIST, Japan; City University of Hong Kong, China)

A New Business Model of Custom Software Development for Agile Software Development
Yoshihito Kuranuki, Tsuyoshi Ushio, Tsutomu Yasui, and Susumu Yamazaki  (SonicGarden, Japan; Simple/Architect, Japan; Eiwa System Management, Japan; University of Kitakyushu, Japan)

Developing Enterprise Mobile Applications the Easy Way
Aharon Abadi, Yael Dubinsky, Andrei Kirshin, Yossi Mesika, Idan Ben-Harrush, and Uzy Hadad  (IBM Research, Israel; Academic College of Tel Aviv-Yaffo, Israel)
Context-Sensitive Detection of Information Exposure Bugs with Symbolic Execution
Paul Muntean, Claudia Eckert, and Andreas Ibing  (TU München, Germany)

Supporting Clone Analysis with Tag Cloud Visualization
Manamu Sano, Eunjong Choi, Norihiro Yoshida, Yuki Yamanaka, and Katsuro Inoue  (Osaka University, Japan; Nagoya University, Japan)

Sketch-Based Gradual Model-Driven Development
Peiyuan Li, Naoyasu Ubayashi, Di Ai, Yu Ning Li, Shintaro Hosoi, and Yasutaka Kamei  (Kyushu University, Japan)

An Empirical Study of BM25 and BM25F Based Feature Location Techniques
Zhendong Shi, Jacky Keung, and Qinbao Song  (Xi’an Jiaotong University, China; City University of Hong Kong, China)
**Program for SEES**

**Monday, November 17**

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<td><strong>SEES 2014</strong></td>
<td>Mon, Nov 17, 09:10 – 10:00, Hall 3</td>
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<td>Educating Diverse Software Engineering Students</td>
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<td>Interactive Classroom Games for Teaching Software Engineering</td>
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<td>Yuriy Brun</td>
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<td><strong>SEES 2014</strong></td>
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<td>Tutorial 3:</td>
<td>How to Promote Students’ Problem Solving Abilities: The Practice of Course Reconstruction and Its Flipped Classroom</td>
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<td>Gamifying Teaching and Learning of Software Engineering and Programming</td>
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<td>Panel:</td>
<td>Software Engineering Education for the Real World</td>
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<td>Laura Dillon</td>
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<td>Closing</td>
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<td>Mary Jean Memorial</td>
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<td>SEES/Internetware dinner</td>
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Program for Internetware

Monday, November 17

Opening
Mon, Nov 17, 09:00 – 09:05, Hall 4

Internetware 2014
Mon, Nov 17, 09:05 – 09:50, Hall 4

What is the Big Idea behind Big Data? (Keynote)
Lionel M. Ni (Hong Kong University of Science and Technology)

Mining Data
Mon, Nov 17, 09:50 – 10:30, Hall 4

Bug Localization via Searching Crowd-Contributed Code
Qianxiang Wang and Xuan Li (Peking University, China)

Linking Stack Overflow to Issue Tracker for Issue Resolution
Tao Wang, Gang Yin, Huaimin Wang, Cheng Yang, and Peng Zou (National University of Defense Technology, China; Academy of Equipment Command and Technology, China)

A Graph Database Based Crowdsourcing Infrastructure for Modelling and Searching Code Structure
Zeqi Lin, Junfeng Zhao, and Bing Xie (Peking University, China)

Mobile and Cloud
Mon, Nov 17, 11:00 – 12:30, Hall 4

User Preference Based Autonomic Generation of Self-Adaptive Rules
Tianqi Zhao, Haiyan Zhao, Wei Zhang, and Zhi Jin (Peking University, China)

EasyCache: A Transparent In-Memory Data Caching Approach for Internetware
Wei Wang, Zhaolui Liu, Yong Jiang, Xinchen Yuan, and Jun Wei (Institute of Software at Chinese Academy of Sciences, China)

What Makes a Good App Description?
He Jiang, Hongjing Ma, Zhilei Ren, Jingxuan Zhang, and Xiaochen Li (Dalian University of Technology, China)

FuAET: A Tool for Developing Fuzzy Self-Adaptive Software Systems
Qiliang Yang, Xianping Tao, Hongwei Xie, Jianchun Xing, and Wei Song (PLA University of Science and Technology, China; Nanjing University, China; Nanjing University of Science and Technology, China)

A Smart Mobile Contact Recommender Based on Smart Phone Data
Xiwei Zhuang, Yanchun Sun, and Kui Wei (Peking University, China)

Characterizing Cache Usage for Mobile Web Applications
Yun Ma, Xuanzhe Liu, Shuhui Zhang, and Xuan Lu (Key Laboratory of High Confidence Software Technologies, China)

SmartRelationship: A VM Relationship Detection Framework for Cloud Management
Xiaodong Zhang, Ying Zhang, Xing Zhao, Gang Huang, and Qiang Lin (Peking University, China; Guangdong Power Grid, China)
Measuring the Quality of Issue Tracking Data
Feifei Tu and Feixue Zhang  (Key Laboratory of High Confidence Software Technologies, China)

AspectBreeze: Integrating Trustworthiness Aspects into Graph Grammar Supported Architecture Description Language
Jingzhou Liu, Yuting Chen, Chen Li, and Jianjun Zhao (Shanghai Jiao Tong University, China)

Using Entropy Weight-Based TOPSIS to Implement Failure Mode and Effects Analysis
Xiaoyu Fu, Linpeng Huang, Guannan Su, Luxi Chen, Chen Li, and Linzhu Wu (Shanghai Jiao Tong University, China)

Towards Realisation of Evolvable Runtime Variability in Internet-Based Service Systems via Dynamical Software Update
Jiwei Liu and Xinjun Mao (National University of Defense Technology, China)

Guarantee High Reliability and Effectiveness for Softwares in Internetware
Xiaoda Zhang, Haiyan Chen, Xin Li, Zhuzhong Qian, Sheng Zhang, and Sanglu Lu (Nanjing University, China; Nanjing University of Aeronautics and Astronautics, China)

Model Defined Fault Tolerance in Cloud
Yihan Wu, Hui Song, Yingfei Xiong, Zibin Zheng, Ying Zhang, and Gang Huang (Peking University, China; SINTEF, Norway; Chinese University of Hong Kong, China)

Flourishing Creativity in Software Development via Internetware Paradigm
Lin Liu, Jianmin Wang, Xiaojun Ye, Xuezhe Li, and Hongji Yang (Tsinghua University, China; Bath Spa University, UK)

Service Retrieval Based on Hybrid SLVM of WSDL
Jun Long, Lu-Da Wang, Zu-De Li, and Zu-Ping Zhang (Central South University, China)

Extending Execution Plan with Execution Path Set Partitions
Mingkun Yang, Qimin Peng, and Xiaohui Hu (Institute of Software at Chinese Academy of Sciences, China)

Automated Recommendation of Dynamic Software Update Points
Zelin Zhao, Xiaoxing Ma, Chang Xu, and Wenhua Yang (Nanjing University, China)

Inferring Loop Invariants of Programs with Polynomial Post-conditions
Li Mengjun (National University of Defense Technology, China)

Panel: Future of Internetware
Mon, Nov 17, 17:20 – 18:00, Hall 4
# Program for DeMobile

## Monday, November 17

### DeMobile 2014
Mon, Nov 17, 09:00 – 09:15, Hall 5

**Opening**
Aharon Abadi

### DeMobile 2014
Mon, Nov 17, 09:15 – 09:45, Hall 5

**Application Development and the Internet of Everything (Keynote)**
Yannick Pellet  (Samsung Research, USA)

### Session 1
Mon, Nov 17, 09:45 – 10:30, Hall 5

**Responsiveness Analysis Tool for Android Application**
Thanaporn Ongkosit and Shingo Takada  (Keio University, Japan)

**Attack Surfaces for Mobile Devices**
Mark Sherman  (SEI, USA)

### Session 2
Mon, Nov 17, 11:00 – 12:00, Hall 5

**Improving Responsiveness in Mobile Apps via Refactoring for Asynchrony (Invited Talk)**
Danny Dig  (Oregon State University, USA)

**Perspectives on Task Ownership in Mobile Operating System Development (Invited Talk)**
Subhajit Datta  (Singapore University of Technology and Design, Singapore)

**Apposcopy: Automated Detection of Android Malware (Invited Talk)**
Yu Feng, Isil Dillig, Saswat Anand, and Alex Aiken  (University of Texas at Austin, USA; Stanford University, USA)

### DeMobile 2014
Mon, Nov 17, 12:00 – 12:30, Hall 5, Chair: Aharon Abadi

**Panel: Mobile Software – Is That Really Just Software for Devices with Small Screens**
Yael Dubinsky, Federica Sarro, Omer Trip, and Rafael Priednicki  (IBM Research - Haifa, Israel; University College London, UK; IBM Research, USA; Pontificia Universidade Católica do Rio Grande do Sul, Brazil)

### DeMobile 2014
Mon, Nov 17, 14:00 – 14:50, Hall 5

**Mobile: To Stay Competitive, Enterprises Leverage Mobility to Re-invent Their Interaction with Customers (Keynote)**
Greg Truty
Session 3  
Mon, Nov 17, 14:50 – 15:30, Hall 5

Energy-Aware Design Patterns for Mobile Application Development (Invited Talk)  
Abhijeet Banerjee and Abhik Roychoudhury  (National University of Singapore, Singapore)

Automated Detection and Mitigation of Inter-application Security Vulnerabilities in Android (Invited Talk)  
Sam Malek, Hamid Bagheri, and Alireza Sadeghi  (George Mason University, USA)

Activity: Wearable Devices in the Mobile Era: Research Challenges  
Mon, Nov 17, 16:00 – 17:30, Hall 5, Chairs: Yael Dubinsky and Aharon Abadi
Program for CrowdSoft

Monday, November 17

Opening
Mon, Nov 17, 09:00 – 17:30, Hall 6, Chair: Huaimin Wang

CrowdSoft 2014
Mon, Nov 17, 09:00 – 09:50, Hall 6, Chair: Gang Yin

On the Fusion of the Power of Computers and the Wisdom of Crowds: Opportunities and Challenges (Keynote)
Hailong Sun (Beihang University)

Software Crowdsourcing
Mon, Nov 17, 09:00 – 11:30, Hall 6, Chair: Gang Yin

How the Crowd Impacts Commercial Applications: A User-Oriented Approach
Huichong He, Zhiyi Ma, Hongjie Chen, and Weizhong Shao (Peking University, China)

Crowdsourcing in the Brazilian IT Industry: What We Know and What We Don’t Know
Leticia Machado, Graziela Pereira, Rafael Prikladnicki, Erran Carmel, and Cleíson R. B. de Souza (PUCRS, Brazil; American University, USA; Federal University of Pernambuco, Brazil)

Using Clustering and Transitivity to Reduce the Costs of Crowdsourced Entity Resolution
Lisha Guo, Hailong Sun, and Xudong Liu (Beihang University, China)

iTest: Testing Software with Mobile Crowdsourcing
Minzhi Yan, Hailong Sun, and Xudong Liu (Beihang University, China)

Crowd-Based Software Development in GitHub
Mon, Nov 17, 11:30 – 12:30, Hall 6, Chair: Wei Wang

Recommending Relevant Projects via User Behaviour: An Exploratory Study on Github
Lingxiao Zhang, Yanzhen Zou, Bing Xie, and Zixiao Zhu (Peking University, China)

Exploring the Patterns of Social Behavior in GitHub
Yue Yu, Gang Yin, Huaimin Wang, and Tao Wang (National University of Defense Technology, China)

Investigating Social Media in GitHub’s Pull-Requests: A Case Study on Ruby on Rails
Yang Zhang, Gang Yin, Yue Yu, and Huaimin Wang (National University of Defense Technology, China)

CrowdSoft 2014
Mon, Nov 17, 14:00 – 14:40, Hall 6, Chair: Tao Wang

Mining Micro-Practices from Operational Data (Keynote)
Minghui Zhou (Peking University)
Crowd-Based Development for Web Services and Mobile Apps
Mon, Nov 17, 14:40 – 16:30, Hall 6, Chair: Tao Wang

SmartHR: A Resume Query and Management System Based on Semantic Web
Yeqing Ke, Zhirou Ma, Haijiang Wu, Jie Liu, Hua Zhong, and Jun Wei  (Institute of Software at Chinese Academy of Sciences, China)

Personalized Mobile Application Discovery
Cheng Yang, Tao Wang, Gang Yin, Huaimin Wang, Ming Wu, and Ming Xiao  (National University of Defense Technology, China)

A Novel Multilayered Context Awareness Technology for Internetware Evolution
Yan Hu, Qimin Peng, and Xiaohui Hu  (Institute of Software at Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China)

Estimating the Dynamic Performance of Composed Services: A Probability Theory Based Approach
Mingkun Yang, Qimin Peng, and Xiaohui Hu  (Institute of Software at Chinese Academy of Sciences, China; University of Chinese Academy of Sciences, China)
Program for SSE

Monday, November 17

SSE 2014
Mon, Nov 17, 09:00 – 09:10, Hall 7

Opening
Filippo Lanubile and Raian Ali  (University of Bari, Italy; Bournemouth University, UK)

SSE 2014
Mon, Nov 17, 09:10 – 10:30, Hall 7

The (R)Evolution of Social Media in Software Engineering
Margaret-Anne Storey  (University of Victoria, Canada)

Collaboration
Mon, Nov 17, 11:00 – 12:20, Hall 7

Can Collaborative Tagging Improve User Feedback? A Case Study
Rana Alkadhi, Dennis Pagano, and Bernd Bruegge  (TU München, Germany; King Saud University, Saudi Arabia)

Supporting Collaboration of Heterogeneous Teams in an Augmented Team Room
Markus Kleffmann, Matthias Book, and Volker Gruhn  (University of Duisburg-Essen, Germany)

Collaboration - Poster
Mon, Nov 17, 12:20 – 12:30, Hall 7

Sketches and Diagrams in Practice
Sebastian Baltes and Stephan Diehl  (University of Trier, Germany)

Human Factors
Mon, Nov 17, 14:00 – 15:30, Hall 7

Eliciting and Visualising Trust Expectations using Persona Trust Characteristics and Goal Models
Shamal Faily and Ivan Fléchais  (Bournemouth University, UK; University of Oxford, UK)

One Size Doesn't Fit All: Diversifying "The User" using Personas and Emotional Scenarios
Antonio A. Lopez-Lorca, Tim Miller, Sonja Pedell, Antonette Mendoza, Alen Keirnan, and Leon Sterling  (Swinburne University of Technology, Australia; University of Melbourne, Australia)

Towards Discovering the Role of Emotions in Stack Overflow
Nicole Novielli, Fabio Calefato, and Filippo Lanubile  (University of Bari, Italy)
Empirical Studies
Mon, Nov 17, 16:00 – 17:00, Hall 7

Andrew Meneely, Alberto C. Rodriguez Tejeda, Brian Spates, Shannon Trudeau, Danielle Neuberger, Katherine Whitlock, Christopher Ketant, and Kayla Davis  (Rochester Institute of Technology, USA)

Developer Involvement Considered Harmful?: An Empirical Examination of Android Bug Resolution Times
Subhajit Datta, Proshanta Sarkar, and Subhashis Majumder  (Singapore University of Technology and Design, Singapore; Heritage Institute of Technology, India)

Closing
Mon, Nov 17, 17:00 – 17:30, Hall 7
Conference Entertainment Programs

1. **Chinese Knotting and Rainbow Calligraphy**
   Time: 7:00 PM, November 18 (during reception)
   Venue: Pre-function Hall

2. **Lion Dance and Chinese Music Performance**
   Time: 7:55 PM, November 19 (during banquet)
   Venue: Laguna Palace Restaurant
Conference Venue Maps

Auditorium

Pre-function Hall

Conference Halls 4-7
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