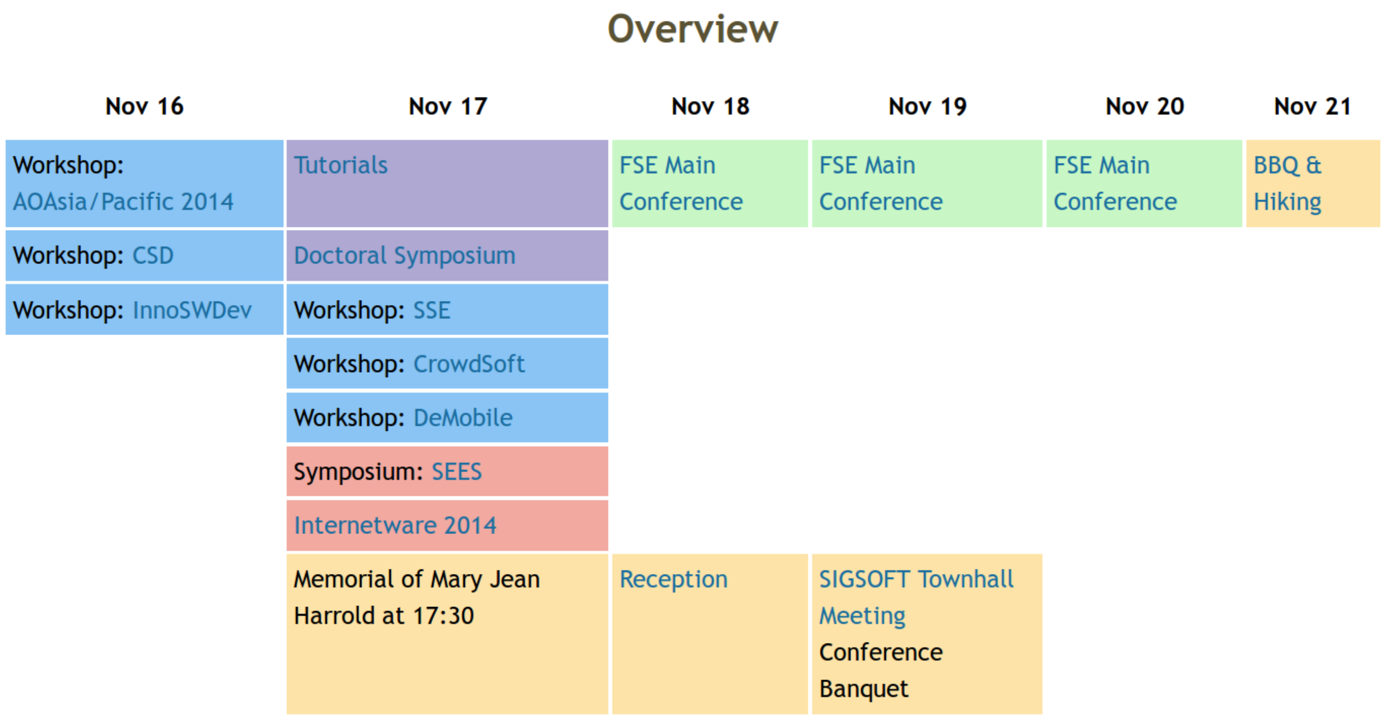
# FSE 2014

*22nd ACM SIGSOFT*
*International Symposium on*

# Foundations of Software Engineering

*November 16–21, 2014, Hong Kong*

# Program Brochure



# Overview

| Nov 16 | Nov 17 | Nov 18 | Nov 19 | Nov 20 | Nov 21 |
|---|---|---|---|---|---|
| Workshop: AOAsia/Pacific 2014 | Tutorials | FSE Main Conference | FSE Main Conference | FSE Main Conference | BBQ & Hiking |
| Workshop: CSD | Doctoral Symposium | | | | |
| Workshop: InnoSWDev | Workshop: SSE | | | | |
| | Workshop: CrowdSoft | | | | |
| | Workshop: DeMobile | | | | |
| | Symposium: SEES | | | | |
| | Internetware 2014 | | | | |
| | Memorial of Mary Jean Harrold at 17:30 | Reception | SIGSOFT Townhall Meeting<br>Conference Banquet | | |

# Contents

Message from the Chairs . . . 3

FSE Organization . . . 5

Program for FSE . . . 8

Program for AOAsia . . . 19

Program for CSD . . . 20

Program for InnoSWDev . . . 21

Program for SEES . . . 23

Program for Internetware . . . 25

Program for DeMobile . . . 27

Program for CrowdSoft . . . 29

Program for SSE . . . 31

Conference Entertainment Programs . . . 33

Conference Venue Maps . . . 34

Sponsors . . . 36

# 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

## Organizing Committee

**General Chair**
Shing-Chi Cheung, The Hong Kong University of Science and Technology, Hong Kong

**Program Chairs**
Alessandro Orso, Georgia Institute of Technology, USA
Margaret-Anne Storey, University of Victoria, Canada

**Workshop Chairs**
Shigeru Chiba, The University of Tokyo, Japan
Frances Paulisch, Siemens AG, Germany

**Visions and Challenges Chairs**
Jian Lu, Nanjing University, China
Tao Xie, University of Illinois at Urbana-Champaign, USA

**Tutorials Chair**
Joanne M. Atlee, University of Waterloo, Canada

**Doctoral Symposium Chairs**
Abhik Roychoudhury, National University of Singapore, Singapore
Xiangyu Zhang, Purdue University, USA

**Research Demos Chairs**
Darko Marinov, University of Illinois at Urbana-Champaign, USA
Minghui Zhou, Peking University, China

**Industry Relation Chair**
Wolfgang Emmerich, Zuhlke Engineering Ltd. and University College London, UK

**Student Volunteer Chairs**
Christian Bird, Microsoft Research, USA
Jacky Keung, City University of Hong Kong, Hong Kong

**Artifacts Evaluation Chairs**
Antonio Carzaniga, University of Lugano, Switzerland
Prem Devanbu, UC Davis, USA

**ACM Student Research Competition Chair**
Dongmei Zhang, Microsoft Research, China

**Local Arrangement Chair**
Hareton Leung, The Hong Kong Polytechnic University, Hong Kong

**Registration Chair**
Eric Bodden, Fraunhofer SIT & TU Darmstadt, Germany

**Publicity Chairs**
Diego Garbervetsky, University of Buenos Aires, Argentina
Reid Holmes, University of Waterloo, Canada
Sung Kim, The Hong Kong University of Science and Technology, Hong Kong
Martin Pinzger, University of Klagenfurt, Austria

**Proceedings Chair**
Sam Malek, George Mason University, USA

**Web and Social Media Chairs**
Shauvik Roy Choudhary, Georgia Institute of Technology, USA
Leif Singer, University of Victoria, Canada

**Mobile Program Chair**
Reid Holmes, University of Waterloo, Canada

**Treasurer**
Y.T. Yu, City University of Hong Kong, Hong Kong

**Graphic Designer**
T.H. Tse, The University of Hong Kong, Hong Kong

**Conference Secretary**
Yepang Liu, The Hong Kong University of Science and Technology, Hong Kong

## Program Committee

Luciano Baresi, Politecnico di Milano, Italy
Victor Braberman, Universidad de Buenos Aires, Argentina
Tevfik Bultan, University of California, Santa Barbara, USA
Antonio Carzaniga, University of Lugano, Switzerland
Wing-Kwong Chan, City University of Hong Kong, Hong Kong
Satish Chandra, Samsung Electronics, USA
Jane Cleland-Huang, DePaul University, USA
Prem Devanbu, University of California, Davis, USA
Massimiliano Di Penta, University of Sannio, Italy
Matt Dwyer, University of Nebraska - Lincoln, USA
Alessandro Garcia, Pontifical Catholic University of Rio de Janeiro, Brasil
Mark Harman, University College London, UK

James Herbsleb, Carnegie Mellon University, USA
Valerie Issarny, Inria, France
James Jones, University of California, Irvine, USA
Sarfraz Khurshid, University of Texas at Austin, USA
Miryung Kim, The University of Texas at Austin, USA
Rainer Koschke, University of Bremen, Germany
Leonardo Mariani, University of Milano Bicocca, Italy
Nenad Medvidovic, University of Southern California, USA
Aditya Nori, Microsoft Research, India
Martin Robillard, McGill University, Canada
Grigore Rosu, University of Illinois at Urbana-Champaign, USA
Yannis Smaragdakis, University of Athens, Greece
Paolo Tonella, Fondazione Bruno Kessler, Italy
Sebastian Uchitel, Universidad de Buenos Aires, Argentina and Imperial College London, UK
Arie van Deursen, Delft University of Technology, The Netherlands
Willem Visser, Stellenbosch University, South Africa
Chao Wang, Virginia Tech, USA
Charles Zhang, Hong Kong University of Science and Technology, Hong Kong
Lu Zhang, Peking University, China
Jianjun Zhao, Shanghai Jiao Tong University, China
Thomas Zimmermann, Microsoft Research, USA

## Additional Reviewers

Muath Alkhalaf
Dalal Alrajeh
Emil Andriescu
Fernando Asteasuain
Abdulbaki Aydin
George Balatsouras
Aggelos Biboudis
Ivan Bocic
Yan Cai
Guido De Caso
Rodrigo Castaño
Mariano Cerrutti
Yen-Jung Chang
Guido Chari
Xiao Cheng
Daniel Ciolek
Thelma Colanzi
Bradley Cossette
Hernan Czemirinski
Marcelo D'Amorim
Francisco Dantas
Nicholas Digiuseppe
Nicolas Dintzner
Nicolás D´ippolito
Kleinner Farias
Kostas Ferles
Diego Funes
Diego Garbervetsky
Divya Gopinath
Georgios Gousios
Shengjian Guo
Jeff Huang
Simon Jensen
Changjiang Jia
George Kastrinis
Jacky Keung
Sepideh Khoshnood
Chang Hwan Peter Kim
Uirá Kulesza
Markus Kusano
Everton Leandro
Ziyi Lin
Pablo Martinez Lopez
Qingzhou Luo
Fernan Martinelli
Hernan Melgratti
Na Meng
Brandon Moore
Razieh Nokhbeh-Zaeem
Vijay Krishna Palepu
Esteban Pavese
Gervasio Perez
Luca Ponzanelli
Ripon Saha
Mauro Santoro
Federica Sarro
Koushik Sen
Francisco Servant
Myoungkyu Song
Wenhao Song
Andrei Stefanescu
Michael Striewe
Christoph Treude
Shangru Wu
Xiao Xiao
Dacong Yan
Chunbai Yang
Zijiang Yang
Qiuping Yi
Annie T.T. Ying
Apostolos Zarras
Cheng Zhang
Lingming Zhang
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**
Yamilet 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

# Tuesday, November 18

## 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 Siau-Cheng Khoo (National University of Singapore, Singapore; Singapore Management University, Singapore)

---

## Lunch
**Tue, Nov 18, 12:20 – 13:30, Happiness Cuisine**

---

## Main Research
### Static Analysis
**Tue, Nov 18, 13:30 – 15:10, Auditorium**
**Chair: Jianjun Zhao**

**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)

## Main Research
### Mining Software Repositories
**Tue, Nov 18, 13:30 – 15:10, Hall 4-7**
**Chair: Thomas Zimmermann**

**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**

---

## Main Research
### Formal Methods and Verification
**Tue, Nov 18, 15:30 – 17:10, Auditorium**
**Chair: Tevfik Bultan**

**Counterexample Guided Abstraction Refinement of Product-Line Behavioural Models**
Maxime Cordy, Patrick Heymans, Axel Legay, Pierre-Yves Schobbens, Bruno Dawagne, 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)

## Main Research
### Regression Testing
**Tue, Nov 18, 15:30 – 17:10, Hall 4-7**
**Chair: Willem Visser**

**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**
Amiangshu 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)

# FSE Track
## 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)

## FSE Track
### Student Research Competition Posters
### Tue, Nov 18, 18:00 – 20:30, Pre-function Hall

**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)

## Reception + Demo Posters
### Tue, Nov 18, 18:00 – 20:30, Pre-function Hall

---

# Wednesday, November 19

## Keynote
### Wed, Nov 19, 09:00 – 10:20, Auditorium

**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.

---

## Morning Break
### Wed, Nov 19, 10:20 – 10:40, Pre-function Hall

---

## Main Research
### Improving Recommender Systems
**Wed, Nov 19, 10:40 – 12:20, Auditorium**
**Chair: Nenad Medvidovic**

**On the Localness 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**
Yoshiki 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)

## 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, Shanxiang 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)

---

## 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 Sencun 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
### Symbolic Execution
**Wed, Nov 19, 13:30 – 15:10, Hall 4-7**
**Chair: Charles Zhang**

**How We Get There: A Context-Guided Search Strategy in Concolic Testing**
Hyunmin Seo and Sunghun 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 Andreasen, and Indradeep Ghosh (Fujitsu Labs, USA; Aarhus University, Denmark)

---

## Afternoon Break
**Wed, Nov 19, 15:10 – 15:30, Pre-function Hall**

## 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, Emad 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 Hosoai, 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; SimpleArchitect, 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)

## Software Modeling, Analysis with Visualization Approach

**Sun, Nov 16, 16:00 – 17:30, Hall 6**

### 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 Hosoai, 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

### Opening
**Mon, Nov 17, 09:00 – 09:10, Hall 3**

### SEES 2014
**Mon, Nov 17, 09:10 – 10:00, Hall 3**

**Tutorial 1: Educating Diverse Software Engineering Students**
Mary Lou Soffa

### SEES 2014
**Mon, Nov 17, 10:00 – 10:50, Hall 3**

**Tutorial 2: Interactive Classroom Games for Teaching Software Engineering**
Yuriy Brun

### SEES 2014
**Mon, Nov 17, 11:20 – 12:10, Hall 3**

**Tutorial 3: How to Promote Students' Problem Solving Abilities: The Practice of Course Reconstruction and Its Flipped Classroom**
Daoxu Chen and Xianping Tao

### SEES 2014
**Mon, Nov 17, 14:00 – 14:50, Hall 3**

**Tutorial 4: Gamifying Teaching and Learning of Software Engineering and Programming**
Tao Xie

### SEES 2014
**Mon, Nov 17, 14:50 – 15:40, Hall 3**

**Tutorial 5: Online System and Big Data for Software Engineering Education**
Qianxiang Wang

### SEES 2014
**Mon, Nov 17, 16:10 – 17:10, Hall 3**

**Panel: Software Engineering Education for the Real World**
Laura Dillon

## Closing
**Mon, Nov 17, 17:10 – 17:20, Hall 3**

---

## Mary Jean Memorial
**Mon, Nov 17, 17:30 – 19:30, Hall 3**

---

## SEES/Internetware dinner
**Mon, Nov 17, 19:30 – 21:30, Happiness Cuisine**

# 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, Zhaohui 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)

---

## Software / Data Quality
**Mon, Nov 17, 14:00 – 15:30, Hall 4**

**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)

---

## Development Support
**Mon, Nov 17, 16:00 – 17:20, Hall 4**

**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 Prikladnicki (IBM Research - Haifa, Israel; University College London, UK; IBM Research, USA; Pontifícia 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, 09:10 – 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, 09:50 – 11:30, Hall 6, Chair: Gang Yin**

**How the Crowd Impacts Commercial Applications: A User-Oriented Approach**
Huihong 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 Cleidson 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

**An Empirical Investigation of Socio-technical Code Review Metrics and Security Vulnerabilities**
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**

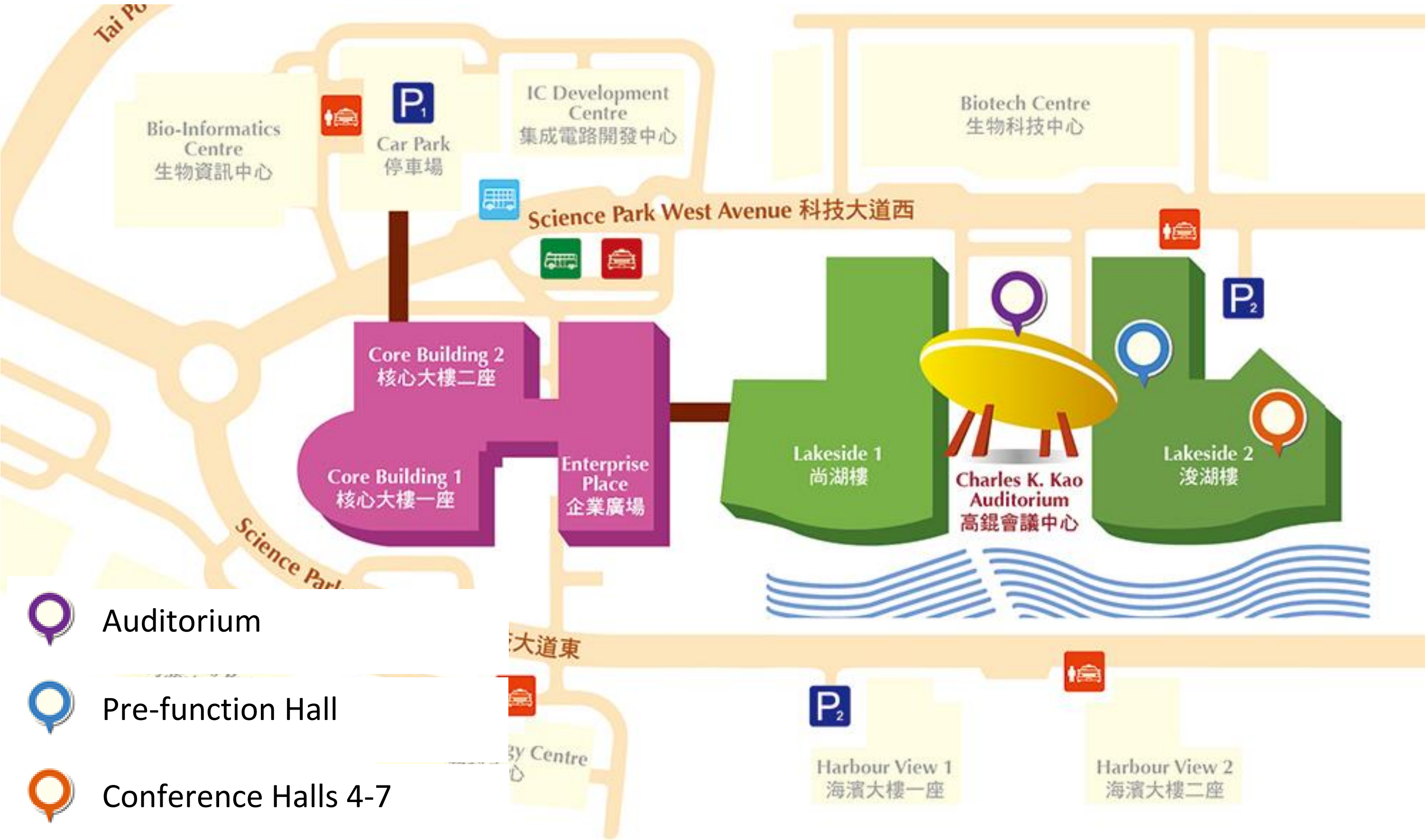
   Time: 7:00 PM, November 18 (during reception)
   Venue: Pre-function Hall

彩虹書法
Rainbow Calligraphy

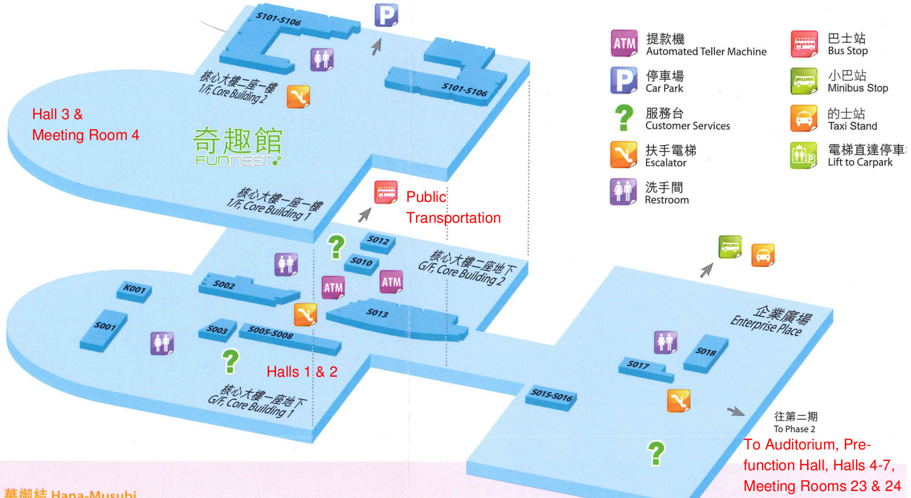
2. **Lion Dance and Chinese Music Performance**

   Time: 7:55 PM, November 19 (during banquet)
   Venue: Laguna Palace Restaurant

# Conference Venue Maps


Tai Po
Bio-Informatics Centre
生物資訊中心
P1
Car Park
停車場
IC Development Centre
集成電路開發中心
Biotech Centre
生物科技中心
Science Park West Avenue 科技大道西
P2
Core Building 2
核心大樓二座
Core Building 1
核心大樓一座
Enterprise Place
企業廣場
Lakeside 1
尚湖樓
Charles K. Kao Auditorium
高錕會議中心
Lakeside 2
浚湖樓
Science Park
大道東
P2
Harbour View 1
海濱大樓一座
Harbour View 2
海濱大樓二座
Auditorium
Pre-function Hall
Conference Halls 4-7

# 1 第一期 PHASE ONE


S101-S106
S101-S106
核心大樓二座一樓
1/F, Core Building 2
Hall 3 &
Meeting Room 4
奇趣館
FUNNEST
核心大樓一座一樓
1/F, Core Building 1
Public
Transportation
S012
S010
ATM
ATM
核心大樓二座地下
G/F, Core Building 2
K001
S001
S002
S003
S005-S008
S013
Halls 1 & 2
核心大樓一座地下
G/F, Core Building 1
S015-S016
S017
S018
企業廣場
Enterprise Place
往第二期
To Phase 2
To Auditorium, Pre-function Hall, Halls 4-7, Meeting Rooms 23 & 24
提款機 Automated Teller Machine
停車場 Car Park
服務台 Customer Services
扶手電梯 Escalator
洗手間 Restroom
巴士站 Bus Stop
小巴站 Minibus Stop
的士站 Taxi Stand
電梯直達停車場 Lift to Carpark

**K001** 華御結 Hana-Musubi
位置 Location : 核心大樓一座地下 G/F, Core Building 1 電話 Tel : 2607 4433
營業時間 Opening hours : 8:00am - 3:00pm (星期一至五 Mon - Fri)

**S001** Pantry On Board
位置 Location : 核心大樓一座地下 G/F, Core Building 1 電話 Tel : 2607 4311
營業時間 Opening hours : 8:00am - 5:00pm (星期一至五 Mon - Fri)

**S002** 一粥麵 Super Super Congee
位置 Location : 核心大樓二座地下 G/F, Core Building 2 電話 Tel : 2144 2550
營業時間 Opening hours : 7:30am - 2:30pm (星期一至五 Mon - Fri)

**S003** 永隆銀行 Wing Lung Bank
位置 Location : 核心大樓一座地下 G/F, Core Building 1 電話 Tel : 3507 0046
營業時間 Opening hours : 9:00am - 5:00pm (星期一至五 Mon - Fri)
9:00am - 1:00pm (星期六 Sat)

**S005-S008** OK 便利店 Circle K Convenience Store
位置 Location : 核心大樓一座地下 G/F, Core Building 1 電話 Tel : 2144 2548
營業時間 Opening hours : 7:00am - 9:00pm (星期一至五 Mon - Fri)
7:00am - 7:00pm (星期六、日及公眾假期 Sat, Sun & PH)

**S010** 農本方診所 Nong's Chinese Medicine Clinic
位置 Location : 核心大樓二座地下 G/F, Core Building 2 電話 Tel : 3583 3183
營業時間 Opening hours (敬請預約 By appointment) :
10:00am - 7:00pm (星期一至五 Mon - Fri), 10:00am - 1:30pm (星期六 Sat)

**S012** 盈健醫務中心 Human Health Medical Centre
位置 Location : 核心大樓二座地下 G/F, Core Building 2 電話 Tel : 2607 4398
營業時間 Opening hours (敬請預約 By appointment) : 10:30am - 3:00pm

**S013** Park Gourmet
位置 Location : 核心大樓二座地下 G/F, Core Building 2 電話 Tel : 2607 4080
營業時間 Opening hours : 7:30am - 8:00pm (星期一至日 Mon - Sun)

**S015-S016** 寶島茶居 Formosa Tea Shop
位置 Location : 企業廣場地下 G/F, Enterprise Place 電話 Tel : 2810 6808
營業時間 Opening hours : 11:30am - 6:00pm (星期一至六 Mon - Sat)

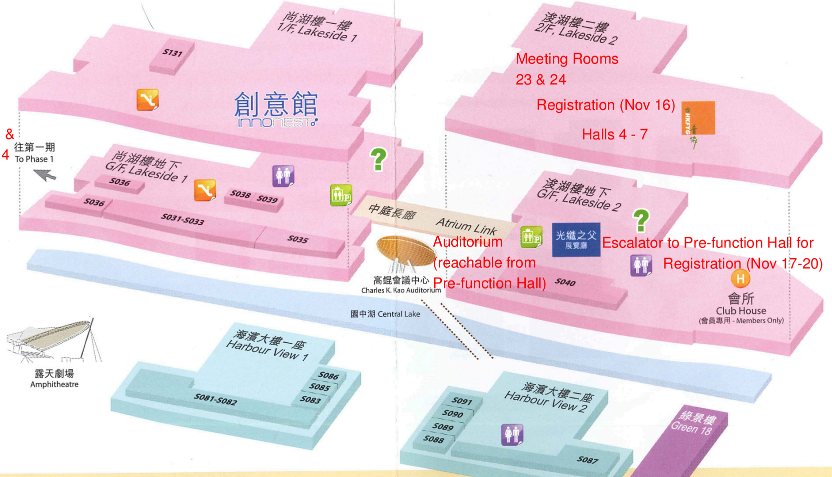
**S017** 君蘭餅店 Orchid Padaria
位置 Location : 企業廣場地下 G/F, Enterprise Place 電話 Tel : 2607 4320
營業時間 Opening hours : 8:00am - 5:00pm (星期一至六 Mon - Sat)

**S018** Pacific Coffee Company
位置 Location : 企業廣場地下 G/F, Enterprise Place 電話 Tel : 2607 4215
營業時間 Opening hours : 7:30am - 8:00pm (星期一至五 Mon - Fri)
8:00am - 5:00pm (星期六 Sat)
10:00am - 5:00pm (星期日及公眾假期 Sun & PH)

**S101-S106** 囍慶 / 盛讌 Happiness Cuisine FSE Lunches (Nov 18-20)
位置 Location : 核心大樓二座一樓 1/F, Core Building 2 電話 Tel : 2827 8803
營業時間 Opening hours : 11:00am - 11:00pm (星期一至五 Mon - Fri)
9:00am - 11:00pm (星期六、日及公眾假期 Sat, Sun & PH)

奇趣館 FUNNEST
**Tech Universe - Fun Nest**
**科技寰宇 — 奇趣館**

# 2 第二期 PHASE TWO


尚湖樓一樓
1/F, Lakeside 1
S131
創意館
INNONEST
To Halls 1, 2, 3 & Meeting Room 4 (Nov 17)
往第一期
To Phase 1
尚湖樓地下
G/F, Lakeside 1
S036
S036
S038
S039
S031-S033
S035
中庭長廊
Atrium Link
Auditorium (reachable from Pre-function Hall)
高錕會議中心
Charles K. Kao Auditorium
園中湖 Central Lake
露天劇場
Amphitheatre
海濱大樓一座
Harbour View 1
S086
S085
S083
S081-S082
浚湖樓二樓
2/F, Lakeside 2
Meeting Rooms 23 & 24
Registration (Nov 16)
Halls 4 - 7
浚湖樓地下
G/F, Lakeside 2
光纖之父 展覽廳
Escalator to Pre-function Hall for Registration (Nov 17-20)
S040
會所
Club House
(會員專用 - Members Only)
海濱大樓二座
Harbour View 2
S091
S090
S089
S088
S087
綠景樓
Green 18

**S036** 花見月 Yayoi
位置 Location : 尚湖樓地下 G/F, Lakeside 1 電話 Tel : 2827 8188
營業時間 Opening hours : 8:00am - 9:00pm (星期一至五 Mon - Fri)
10:00am - 11:00pm (星期六、日及公眾假期 Sat, Sun & PH)

**S038** 生活 · 好點 Good 4 Life
位置 Location : 尚湖樓地下 G/F, Lakeside 1 電話 Tel : 2210 7077
營業時間 Opening hours : 8:00am - 6:00pm (星期一至五 Mon - Fri)

**S039** 漁米之鄉 Food Village
位置 Location : 尚湖樓地下 G/F, Lakeside 1 電話 Tel : 2210 5050
營業時間 Opening hours : 8:00am - 5:00pm (星期一至六 Mon - Sat)

**S031-S033** 藍海洋美食廣場 Ocean Blue Food Court
位置 Location : 尚湖樓地下 G/F, Lakeside 1 電話 Tel : 2210 7022 / 2369 2229
營業時間 Opening hours : 8:00am - 5:00pm (星期一至五 Mon - Fri)
11:00am - 9:30pm (星期六、日及公眾假期 Sat, Sun & PH)

**S035** 紅樓菜館 Red House FSE Lunches (Nov 16 & 17)
位置 Location : 尚湖樓地下 G/F, Lakeside 1 電話 Tel : 2210 7123
營業時間 Opening hours : 11:00am to 9:30pm (星期一至日 Mon - Sun)

**S040** Meraviglia Bar e Ristorante
位置 Location : 浚湖樓地下 G/F, Lakeside 2 電話 Tel : 2210 7168
營業時間 Opening hours : 8:00am - 11:00pm (星期日至四 Sun - Thu)
8:00am - 12:00am (星期五及六 Fri & Sat)

**S081-S082** 朗廚坊 Ron's Kitchen
位置 Location : 海濱大樓一座地下 G/F, Harbour View 1 電話 Tel : 2210 5080
營業時間 Opening hours : 11:00am - 11:00pm (星期一至日 Mon-Sun)

**S083-S086** fusion BY PARK n SHOP
位置 Location : 海濱大樓一座地下 G/F, Harbour View 1 電話 Tel : 2590 0325
營業時間 Opening hours : 9:30am – 7:30pm (星期一至日 Mon-Sun)

**S088-S090** Tom Bar & Grill
位置 Location : 海濱大樓二座地下 G/F, Harbour View 2 電話 Tel : 2210 7071
營業時間 Opening hours : 12:00pm - 11:00pm (星期一至日 Mon-Sun)

**S091** The Contact Store
位置 Location : 海濱大樓二座地下 G/F, Harbour View 2 電話 Tel : 2668 2710
營業時間 Opening hours : 10:00am - 6:00pm (星期一至日 Mon-Sun)

**S131** Subway
位置 Location : 尚湖樓一樓 1/F, Lakeside 1 電話 Tel : 2210 5081
營業時間 Opening hours : 8:00am - 5:00pm (星期一至五 Mon - Fri)

**H** H Corner
(由匡智會營運，只限會所會員使用
For Club House Members only, operated by Hong Chi Association)
位置 Location : 浚湖樓一樓會所 1/F Club House, Lakeside 2
電話 Tel : 2639 8420 / 2664 3620
營業時間 Opening hours : 8:30am - 6:00pm
(星期一至五，公眾假期除外 Mon - Fri except PH)

光纖之父 展覽廳
**「高錕教授：光纖之父」展覽廳**
**"Professor Charles K. Kao : The Father of Fibre Optics" Showcase**
位置 Location : 浚湖樓地下 G/F, Lakeside 2

HKFYG 青協
**香港青年協會創新科學中心**
**HKFYG Centre for Creative Science and Technology**
位置 Location : 浚湖樓二樓210-211室 Unit 210-211, 2/F, Lakeside 2 電話 Tel : 2561 6149
開放時間 Opening hours : 9:00am - 5:30pm (星期一至五 Mon - Fri) ,
9:00am - 1:00pm (星期六 Sat)

創意館 INNONEST
**Tech Universe - Inno Nest**
**科技寰宇 — 創意館**

## Sponsors

acm Association for Computing Machinery

SIG SOFT
SPECIAL INTEREST GROUP ON SOFTWARE ENGINEERING

## Diamond Supporter

中创软件
CVIC SE

## Platinum Supporter

Microsoft Research

## Gold Supporters

Neusoft

SIEMENS

HUAWEI

用友
yonyou

## Silver Supporters

Google™

RADICA
Grow eDatabase Value

SAMSUNG
RESEARCH AMERICA

香港科技大學
THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

## Bronze Supporters

IBM Research

TCL
创意感动生活
The Creative Life

## Other Supporters

CCC
Computing Community Consortium
Catalyst

NSF