I welcome you all to APSEC2014 being held in Jeju Island, Korea. This is the third time Korea has the honor of hosting APSEC. Previous conferences were held in 1996 and 2004 in Seoul and Busan, respectively. This year’s 21st APSEC is even more special in that the conference is now officially beginning its adulthood. Let us celebrate this important milestone! It is apparent that APSEC could not have become the premier conference on software engineering in the Asia-Pacific region without enthusiastic support of researchers in the region. Passionate and dedicated service of current and emeritus members of the APSEC steering committee deserves special recognition.

Jeju Island is the most popular tourist destination in Korea, and there are more than 10 million visitors a year. In addition to engaging in serious technical discussion, please take time to stay a day or two longer and explore beautiful Jeju. You deserve the "healing time." Enjoy the conference and have a great week.

Sincerely yours,

Sungdeok (Steve) Cha
General Chair, APSEC 2014
Professor, Korea University, Korea.
Welcome to APSEC 2014, the 21st Asia-Pacific Software Engineering Conference in Jeju-si, Korea. Jeju-si is located in the island-province of Jeju-do in the south of the Korean peninsula, which is known as the “Island of the Gods”. The city counts 435,413 inhabitants (as of 2012), which makes it one of the largest cities of Korea. Jeju-do is well known for its warm and mild climate all year long, its resorts, with prestigious hotels and public casino facilities. Jeju-do is also famous for its orange and mandarin farms and its UNESCO World Heritage sites.

APSEC 2014 as a whole is the result of the tremendous effort of the many people composing its Organising Committee, who take care of everything, from finding a location to making sure that the food is delicious. In their effort this year, they were helped by people of Se-jong Convention Services, who provided amazing services, in particular a beautiful, professional Web site. Organising a conference is often done in addition to all the other duties of a professor with no prospect of rewards but the acknowledgment of the participants and of the community as a whole. It requires solving dozens of small but time-consuming problems while balancing the books and attending to the participants’ needs. This year, participants and presenters are particularly pampered. Thank you!

The APSEC technical program is the result of the amazing work of the 72 dedicated members of its Program Committee (PC) and their 22 sub-reviewers, chaired by its two Program Co-chairs. The PC is representative of the Asia-Pacific region but also follows the well-known 80-20 rule with 20% of its members from Europe and North-America and 80% from Asia. It also includes about one-third of new members when compared to the previous edition. The PC members received help from many additional reviewers, thus further enforcing the mission of APSEC: it is a place to share knowledge and to learn new skills. We would like to thank all reviewers warmly and commend them for the timeliness, thoroughness, and quality of their reviews.

From the initial 237 submitted abstracts, the PC collectively reviewed 226 high-quality papers, writing more than 480 reviews, 960 comments, and 200 revisions. Finally, it accepted 67 full papers (56 research papers and 12 industry papers) and 4 short papers, corresponding to an acceptance rate of 30% for the full papers. Of these 67 papers, 10 were invited for a special section of the Elsevier journal of Information and Software Technology. One of these 10 papers received the best paper award during the conference banquet.

The APSEC technical program is exciting and spans many aspects of software engineering, including the usual suspects: analysis, architecture and requirements, design, testing but also “cross-cutting” topics such as empirical studies, modelling, project management, and quality. These proceedings contain the 67 full research papers and 4 short papers spread across 13 3-paper sessions, seven 4-paper sessions, and one short-paper session.

The conference program also features three keynotes by leaders in the field of software engineering: Jeong-han Kim (Korea) who is Senior Vice President of Samsung, Director of Software R&D Center of Device Solution Division who describes the challenges met by companies dealing with software systems and the Internet of Things; Mike Howe (Canada) who works for the Mozilla Foundation and discusses the gap between academia and practice in software engineering and proposes concrete step to bridge this gap; and, Hans van Vliet (The Netherlands) who is professor in software engineering at the Vrije Universiteit Amsterdam and presents the evolution of our thinking on software architecture and its relation to decision making.

Co-located with ASPEC 2014 are the 2nd International Workshop on Quantitative Approaches to Software Quality (QuASoQ) and the 2nd Software Engineering Education Workshop (SEEW). APSEC 2014 also features three tutorials by Tsong Yueh Chen on Metamorphic Testing, by Richa Sharma on Using Artificial Intelligence Techniques for Requirements Engineering Research, and by Soon-hoi Ha on Embedded Software Design in the Hardware/Software Codesign Methodology.

All-in-all, you will certainly discover in these proceedings new research results, techniques, and technologies that will be food for thought for the coming years of research.

Happy reading!

Yann-Gaël Guéhéneuc
Program Co-chair
Polytechnique Montréal Canada

Gi-hwon Kwon
Program Co-chair
Kyonggi University Korea
Committee Organizers

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Sungdeok (Steve) Cha, Korea University, Korea

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Yann-Gaël Guéhéneuc, Polytechnique Montréal, Canada
Gihwon Kwon, Kyonggi University, Korea

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Seok-won Lee, Ajou University, Korea

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In-Young Ko, KAIST, Korea

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Stéphane Ducasse, INRIA, France
Elsa Estevez, United Nations University, China
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Jun Han, Swinburne University of Technology, Australia
Liguo Huang, Southern Methodist University, USA
Sung-won Kang, KAIST, Korea
Foutse Khomh, DGIGL, École Polytechnique de Montréal, Canada
Moonsoo Kim, KAIST, Korea
Soo-dong Kim, Soongsil University, Korea
Jeong-ah Kim, Kwandong University, Korea
Tai Hye Kim, Formal Works Inc., Korea
In-Young Ko, KAIST, Korea
Gihwon Kwon, Kyonggi University, Korea
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Chan-gun Lee, Chung-ang University, Korea
Byung-jeong Lee, University of Seoul, Korea
Nam-Hee Lee, Solution Link, Korea
Seok-Won Lee, Ajou University, Korea
Wooin Lee, Kyungpook National University, Korea
Haretan Leung, Hong Kong Polytechnic University, Hong Kong
Deron Liang, National Central University, Taiwan
Hui Liu, RMIT, Australia
Shaoying Liu, Hosei University, Japan
Yang Liu, Nanyang Technological University, Singapore
David Lo, Singapore Management University, Singapore
Akito Monden, NAIT, Japan
Martin Monperrus, University of Lille & INRIA, France
Pornsiri Muenchaisri, Chulalongkorn University, Thailand
Julian Ober, University of Toulouse, IRIT, France
Rocco Oliveto, University of Molise, Italy
Soo-Jin Park, Sogang University, Korea
Mauro Pezzè, University of Lugano, Switzerland
Karl Ping Hung Leung, Vocational Training Council, Hong Kong
Pak Lok Poon, The Hong Kong Polytechnic University, Hong Kong
Denys Poshvanyk, College of William and Mary, USA
Gregg Rothermel, University of Nebraska, USA

APSEC 2014 Organization
Title: Strategy introduction of Embedded Software competence for IoT era

Abstract: “What if the Internet was allowed to go beyond connecting desktops and laptops and could somehow be tied to the devices around us?” The networking paradigm is changing into control devices by allowing the different networks to join and form a homogeneous networking fabric. In the same way that the intranets became an extension of the Internet, the local operating control networks, could be linked to the Internet and intranets where information (data and control) could flow from anywhere to anywhere, from anybody to anything.

At this speech, Speaker want to talk about with the advent of IoT era as a core of hyper-connected society, we introduce the leading scenarios with field’s case study and propose various immediate strategies to make provision for future.

Jeonghan Kim has been devoting himself to the research and development of software systems for almost 30 years. He had been with Hyundai Electronics, Korea, where he was involved in the development of Laser Printer control and emulation software. Jeonghan also worked for Philips Semiconductors and other company at Silicon Valley, CA for 8 years, and made big contributions to the design of software architecture adopted for Philips Set-Top-Box/D-TV SoC.

Jeonghan joined Samsung Electronics, Device Solution Devision, Korea in 2003. He led the software development team at Memory Division. The major products of his team include SSD and eMMC system, which take big portion of market share these days. The SSD model are PM830 and PM840 with 128/256/512 GB capacity.

He also managed System LSI Embedded SW Center, which pioneered the Android platform of the Samsung Galaxy smartphone series, now recording more than 100 million accumulated sales in the world, and 30 million surplus sales than iPhone even in the last quarter of 2013. He is currently Senior Vice President, Director of Software R&D Center of Device Solution Division.

The center was established in 2012 to take the leading role of the research and development of next generation software systems and solutions for semiconductor devices, servers, cloud computing, IoT, and so forth, targeting various wired/wireless systems and big data applications.
Title: Powers of Two: Cultures, Solitudes and Software Engineering

Abstract: A few million years ago, a handful of finches migrated from South America to the Galapagos Islands. In the generations that followed, they evolved to fill a dozen different niches, and became so specialized that they could no longer interbreed.

Something similar has happened over the last forty years in software engineering. For many reasons (not all of them good), researchers and practitioners have focused on different problems. As a result, they now have different viewpoints, different priorities, and in many cases, different languages for talking about what programmers build and how they build it. We are not yet at the point of complete mutual incomprehension, but there are definitely two solitudes: two communities that live and work beside each other rather than with each other.

This talk will explore three related questions: how we got here, what the situation looks like from a practitioner’s point of view, and what concrete steps we can take to jump-start intellectual inter-breeding. We will *not* simply recommend that college courses somehow be made more “relevant”, or that working programmers start reading journal articles. Instead, we will explore concrete steps people on both sides can take to make their questions, methods, and findings more findable and comprehensible.

Mike Hoye has been entrepreneur, enterprise systems administrator and free software advocate for more than a decade, and since January 2013 is now Engineering Community Manager at Mozilla.

Mozilla is as much a cultural institution as it is technical, a fast-growing nation with no natives, dozens of pidgin languages and hundreds of smaller communities made of enthusiastic immigrants the world over. Hoye spends his time in the seams between the cultures, institutions and technologies that underpin the growth of the Open Web, building bridges between different cultures and trying help the institutions and cultures building the Open Web stay as open, accessible and participatory as the Web itself.

Title: Architecting = Decision Making

Abstract: In the past decade, the accepted definition of software architecture has shifted from components -plus-connectors (the solution) to the underlying set of design decisions (the why of the solution). To better understand the field of software architecture, it then becomes natural to study how architects make decisions. Do experienced architects make better decisions than novice architects? Can the architecting process be rational, or is it affected by the same irrationalities one sees in everyday decision making? Can we discover when design decisions are biased? If so, how and when? About what do architects make decisions? Is it only about the solution, or do architects (partly) also define the problem to be solved? And, are the first decisions especially important in shaping the architecture? In this talk, I will sketch the evolution of our thinking of what constitutes software architecture, and the kind of research questions that arise if we view architecting as decision making.

Hans van Vliet is Professor in Software Engineering at the VU University Amsterdam, The Netherlands, since 1986. He got his PhD from the University of Amsterdam. His research interests include software architecture, knowledge management in software development, global software development, and empirical software engineering. Before joining the VU University, he worked as a researcher at the Centrum voor Wiskunde en Informatica (CWI, Amsterdam). He spent a year as a visiting researcher at the IBM Almaden Research Center in San Jose, California. He is the author of “Software Engineering: Principles and Practice”, published by Wiley (3rd Edition, 2008). He is a member of IFIP Working Group 2.10 on software architecture, and the Editor in Chief of the Journal of Systems and Software.
ASPEC2014 Information

Welcome Reception  2 Dec (Tuesday), Tammmra 8F
Banquet           3 Dec (Wednesday), Tammmra 8F
Lunch             1 Dec (Monday) : Tammma Korean Restaurant 1F
                  2 Dec (Tuesday) : The Blue, Buffet Restaurant 2F
                  3 Dec (Wednesday) : Tammma Korean Restaurant 1F
                  4 Dec (Thursday) : The Blue, Buffet Restaurant 2F

Ramada Plaza Hotel Shuttle Bus Schedule

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Program at a Glance

**MONDAY (Dec 1, 2014)**

08:00-09:00 Registration

9:00-12:30 Keynote Speech I
Strategy introduction of Embedded Software competence for IoT era by Jeonghan Kim(Brian), Samsung Electronics, Korea

10:00-10:30 Coffee Break

10:30-12:00 Testing I Modeling I Design I Architecture & Requirement

12:30-14:00 Lunch

12:00-13:30 QuASoQ 2014 Software Engineering Education Workshop (SEEW)

13:30-15:30 Tutorial II
Using Artificial Intelligence Techniques for Requirements Engineering Research by Richa Sharma (IIT-D)

15:30-16:00 Coffee Break

16:00-17:30 Verification I Analysis I Industry Papers I Short Papers

18:00-21:00 Welcome Reception

**TUESDAY (Dec 2, 2014)**

08:00-12:30 Keynote Speech II
Strategy introduction of Embedded Software competence for IoT era by Jeonghan Kim(Brian), Samsung Electronics, Korea

10:00-10:30 Coffee Break

10:30-12:00 Testing I Modeling I Design I Architecture & Requirement

12:30-14:00 Lunch

12:00-13:30 QuASoQ 2014 Software Engineering Education Workshop (SEEW)

13:30-15:30 Tutorial III
Embedded Software Design in the Hardware/Software Codesign Methodology by Soonhoi Ha (Seoul National University)

15:30-16:00 Coffee Break

16:00-17:30 Verification I Analysis I Industry Papers I Short Papers

18:00-21:00 Welcome Reception
### Detailed Program

#### MONDAY (Dec 1, 2014)
- **Tutorial I**
  - Sungdeok (Steve) Cha (Korea University, Korea)
  - Ara, 9:00–12:30
  - Speaker: Tsong Yueh Chen (Swinburne University of Technology)
  - Title: Metamorphic Testing

- **Tutorial II**
  - Yann-Gaël Guéhéneuc (Polytechnique Montréal, Canada)
  - Ara, 14:00–17:30
  - Speaker: Richa Sharma (IIT-D)
  - Title: Using Artificial Intelligence Techniques for Requirements Engineering Research

- **Tutorial III**
  - Giwhon Kwon (Kyonggi University, Korea)
  - Tamra, 14:00–17:00
  - Speaker: Soonhoi Ha (Seoul National University)
  - Title: Embedded Software Design in the Hardware/Software Codesign Methodology

#### TUESDAY (Dec 2, 2014)
- **Keynote I**
  - Sungdeok (Steve) Cha (Korea University, Korea)
  - Tamra, 9:00–10:00
  - Speaker: Jeonghan Kim (Brian), Samsung Electronics, Korea
  - Title: Strategy introduction of Embedded Software competence for IoT era

- **Testing I**
  - Paul Strooper (The University of Queensland, Australia)
  - Tamra, 10:30–12:00
  - A Test Scenario Design Methodology Based on Business Context Modeling and Its Evaluation
  - Norifumi Nomura, Yasuhiro Kikushima, and Mikio Aoyama
  - Test Scenario Generation for Reliability Tactics from UML Sequence Diagram
  - Xiang Qiu and Li Zhang

### Detailed Program

#### WEDNESDAY (Dec 3, 2014)
- **Registration**
- **Keynote Speech II**
  - Powers of Two: Cultures, Solitudes and Software Engineering
  - by Mike Hoye, Mozilla, Canada
- **Coffee Break**
- **Analysis II**
- **Verification II**
- **Testing III**
- **Lunch**
- **Excursion**
- **Banquet**

#### THURSDAY (Dec 4, 2014)
- **Registration**
- **Keynote Speech III**
  - Architecting = Decision Making
  - by Hans van Vliet, VU University Amsterdam
- **Coffee Break**
- **Analysis III**
- **Verification III**
- **Testing IV**
- **Lunch**
- **Project Management**
- **Analysis IV**
- **Industry Papers II**
- **Closing Ceremony**
Test Case Prioritization Based on Information Retrieval Concepts
Jung-Hyun Kwon, In-Young Ko, Gregg Rothermel, and Matt Staats

Testing II
Horst Lichter (RWTH Aachen University, Germany)
Tammra, 13:30–15:30
User Guided Automation for Testing Mobile Apps
Xiujiang Li, Yanyan Jiang, Yaping Liu, Chang Xu, Xiaoxing Ma, and Jian Lu
Modeling and Testing of GUIs Using IOLTS
Shengbo Chen, Dashen Sun, Huakou Miao, and Hongwei Zeng
Improving Testing Coverage for Safety-Critical System by Mutated Specification
Tingliang Zhou, Haiying Sun, Jind Liu, Xiaohong Chen, and Dehui Du
A Framework for Distributed Testing of Timed Composite Systems
Huu Nghia Nguyen, Fatima Zaidi, and Ana Cavalli

Verification I
Huakou Miao (Shanghai University, China)
Tammra, 16:00–17:30
SAT-Based Bounded Software Model Checking for Embedded Software: A Case Study
Yunho Kim and Moonzoo Kim
Model Checking of Software Product Lines in Presence of Nondeterminism and Probabilistics
Mahsa Varshosaz and Ramtin Khosravi
LTL Formulæ to Büchi Automata Translation: An Effective Translation Using On-the-Fly De-Generalization
Laixiang Shan, Zheng Qin, Qiongdi Meng, and Guiming Luo

Modeling I
Ashish Sureka (IIT Delhi, India)
Halla, 10:30–12:00
Effect of Model Based Software Development on Productivity of Enhancement Tasks—An Industrial Study
Damodaram Kamma and Sasi Kumar G
piMML—An Interrupt Program Modelling Language for Real-Time and Embedded Systems
Xin Li, Yanhong Huang, Jianq Shii, Jian Guo, Huibiao Zhu, and Yuanmin Xu
Formal Modeling and Analyzing the Reliability for Service Composition
Guisheng Fan, Huqun Yu, Liqiong Chen, and Dongmei Liu

Modeling II
Hae Young Lee (Seoul Women’s University, Korea)
Halla, 13:30–15:30
Early Experience with Model-Driven Development of MapReduce Based Big Data Application
Asa Rajbihoo, Vinay Kulkarni, and Nikhil Bellarykar
Modeling Web Attachment Storage for Web Applications
Vijay Jain and Aman Kolambkar
A Context-Role Based Modeling Framework for Engineering Adaptive Software Systems
Tetsuo Tamai and Supasit Monpratarnchii
A Model-Driven Approach to Generate Mobile Applications for Multiple Platforms
Muhammad Usman, Muhammad Zohaib Iqbal, and Muhammad Uzair Khan

Analysis I
Bow-Yaw Wang (Academia Sinica, Taiwan)
Halla, 16:00–17:30
Predicting Next Changes at the Fine-Grained Level
Hiroaki Murakami, Keisuke Hotta, Yoshiki Higo, and Shinji Kusumoto
Synchronization Error Detection of MPI Programs by Symbolic Execution
Xianjin Fu, Zhenbang Chen, Chun Huang, Wei Dong, and Ji Wang
Guidelines for the Use of Function Block Diagram in Reactor Protection Systems
Dong-Ah Lee, Junbeom Yoo, and Jang-Soo Lee

Design I
Pornsiri Muenchaisri (Chulalongkorn University, Thailand)
Ora, 10:30–12:00
Traceability-Driven System Development and its Application to Automotive System Development
Hyun Cho
A Lifecycle-Based Design Methodology of the Lightweight Ontology and Its Application to Cultivating High Quality Mandarin Orange
Reiko Fujimoto and Mikio Aoyama
Handling Emergency Mode Switch for Component-Based Systems
Yin Hang and Hans Hansson
### Design II
**Soojin Park** (Sogang University, Korea)  **Ora, 13:30–15:30**

- A Proved Approach for Building Correct Instances of UML Associations: Multiplicities Satisfaction
  Arnel Mammar and Régnie Laleau

- Interactive Scalable Abstraction of Reverse Engineered UML Class Diagrams
  Mohd Hafeez Osman, Michel R.V. Chaudron, and Peter van der Putten

- Context Sensitive Dynamic Slicing of Concurrent Aspect-Oriented Programs
  Jagannath Singh, Dishant Munjal, and Durga Prasad Mohapatra

- An Efficient Application-Device Matching Method for the Mobile Software Ecosystem
  Heuijin Lee, Sungwon Kang, and Myungchul Kim

### Industry Paper I
**Hoh Peter In** (Korea University, Korea)  **Ora, 16:00–17:30**

- Reducing False Alarms from an Industrial-Strength Static Analyzer by SVM
  Jongwon Yoon, Minsik Jin, and Yungbum Jung

- Concolic Testing Framework for Industrial Embedded Software
  Taeksu Kim, Jonghyun Park, Igor Kulida, and Yoonkyu Jang

- A Goal-Oriented Design Methodology of IT-Driven Business Architecture
  Masahiro Ide, Tomoko Kishida, Mikio Aoyama, and Yasuhiro Kikushima

- SYNEYE: An Availability Measurement Tool for Embedded Systems
  Junghwan Lee and Kwangyong Lee

### Architecture & Requirement
**Hironori Washizaki** (Waseda University, Japan)  **Ara, 10:30–12:00**

- Experience on a Microservice-Based Reference Architecture for Measurement Systems
  Matthias Vianden, Horst Lichter, and Andreas Steffens

- Run-Time Monitoring-Based Evaluation and Communication Integrity Validation of Software Architectures
  Ana Dragonir, Horst Lichter, Johannes Dohmen, and Hongyu Chen

- Customer Requirements Validation Method Based on Mental Models
  Youn Kyu Lee, Hoh Peter In, and Rick Kazman

### Empirical Software Engineering
**Idri Ali** (University Mohammed V of Rabat, Morocco)  **Ara, 13:30–15:30**

- Outliers and Replication in Software Engineering
  Henrik Larsson, Erik Lindqvist, and Richard Torkar

- Challenges in the Adoption of Hybrid Cloud: Preliminary Results from a Systematic Literature Review
  Naeem Ullah and Siffat Ullah Khan

- An Empirical Study on the Adequacy of Testing in Open Source Projects
  Pawneet Singh Kochhar, Ferdian Thung, David Lo, and Julia Lawall

- A Novel Developer Ranking Algorithm for Automatic Bug Triage Using Topic Model and Developer Relations
  Tao Zhang, Geunseok Yang, Byungjeong Lee, and Eng Keong Lua

### Short Papers
**Eunkyoung Jee** (KAIST, Korea)  **Ara, 16:00–17:30**

- What Community Contribution Pattern Says about Stability of Software Project?
  Ayushi Rastogi and Ashish Sureka

- Migrated Question Prediction on StackExchange
  Sangeeta Lal, Denzil Correa, and Ashish Sureka

- An Empirical Study on Interaction Factors Influencing Bug Reopenings
  Jinkun Pan and Xiaoguang Mao

- Initial Industrial Experience of GQM-Based Product-Focused Project Monitoring with Trend Patterns
  Hidenori Nakai, Kiyoshi Honda, Hironori Washizaki, Yoshiaki Fukazawa, Ken Asoh, Kaz Takahashi, Kentrou Ogawa, Maki Morii, Takashi Hino, Yosuke Hayakawa, Yasuyuki Tanaka, Shinichi Yamada, and Daisuke Miyazaki
WEDNESDAY (Dec 3, 2014)

Keynote II  Yann-Gaël Guéhéneuc (Polytechnique Montréal, Canada)  Tamra, 9:00–10:00
Speaker: Mike Hoye, Mozilla, Canada
Title: Powers of Two: Cultures, Solitudes and Software Engineering

Analysis II  Jongmoon Baik (KAIST, Korea)  Tamra, 10:30–12:00
Recovery of Object Oriented Features from C++ Binaries
Kyungjin Yoo and Rajeev Barua
Process Cube for Software Defect Resolution
Monika Gupta and Ashish Sureka
Improving Fuzzy Analogy Based Software Development Effort Estimation
Fatima Azzahra Amazal, Ali Idri, and Alain Abran

Veriﬁcation II  Shaoying Liu (Hosei University, Japan)  Halla, 10:30–12:00
Runtime Veriﬁcation by Convergent Formula Progression
Yan Shen, Jianwen Li, Zheng Wang, Ting Su, Bin Fang, Genguang Pu, Wanwei Liu, and Mingsong Chen
Reviewing Formal Speciﬁcation for Validation Using Animation and Trace Links
Mo Li and Shaoying Liu
A Symbolic Partial Order Method for Verifying SystemC
Naiju Zeng and Wenhui Zhang

Testing III  Motoshi Saeki (Tokyo Institute of Technology, Japan)  Ora, 10:30–12:00
A Probabilistic Neural Network-Based Approach for Related Software Changes Detection
Yuan Huang, Xiangping Chen, Qiwen Zou, and Xiaonan Luo
Using Genetic Algorithms to Repair JUnit Test Cases
Yong Xu, Bo Huang, Guojing Wu, and Mengting Yuan

Evaluation of Maude as a Test Generation Engine for Automotive Operating Systems
Yunja Choi, Min Zhang, and Kazuhiro Ogata

THURSDAY (Dec 4, 2014)

Keynote III  Gihwon Kwon (Kyonggi University, Korea)  Tamra, 9:00–10:00
Speaker: Hans van Vliet, VU University Amsterdam
Title: Architecting = Decision Making

Analysis III  In-Young Ko (KAIST, Korea)  Tamra, 10:30–12:00
Learning Summaries of Recursive Functions
Yu-Fang Chen, Bow-Yaw Wang, and Kai-Chun Yang
A Tool to Suggest Similar Program Element Modiﬁcations
Yujiang Yang, Kazunori Sakamoto, Hironori Washizaki, and Yoshikazuki Fukazawa
GAIN: GPU-Based Constraint Checking for Context Consistency
Jun Sui, Chang Xu, Wang Xi, Yanyan Jiang, Chun Cao, Xiaolin Ma, and Jian Lu

Project Management  Chanjin Park (Advanced Institutes of Convergence Technology, Seoul National University, Korea)  Tamra, 13:30–15:30
Factors Affecting the Project Performance of Information Systems Development: Comparison of Organizational Cultures
Tomoyuki Kawamura and Kenichi Takano
Who Should Review this Pull-Request: Reviewer Recommendation to Expedite Crowd Collaboration
Yue Yu, Huaimin Wang, Gang Yin, and Charles X. Ling
A Exploratory Study of @-Mention in GitHub’s Pull-Requests
Yang Zhang, Gang Yin, Yue Yu, and Huaimin Wang
Predicting Time Range of Development Based on Generalized Software Reliability Model
Kiyoshi Honda, Hidenori Nakai, Hironori Washizaki, Yoshikazuki Fukazawa, Ken Asoh, Kazuyoshi Takahashi, Kentarou Ogawa, Maki Mori, Takashi Hino, Yosuke Hayakawa, Yasuyuki Tanaka, Shinichi Yamada, and Daisuke Miyazaki
### Verification III

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<th>Title</th>
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<tr>
<td>Verifying Secure Interface Composition for Component-Based System Designs</td>
<td>Cong Sun, Ning Xi, Jirku Li, Qingsong Yao, and Jianfeng Ma</td>
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<td>Security Weaknesses Detection by Symbolic Analysis of Scenarios</td>
<td>Boutheina Bannour, Jose Escobedo, Christophe Gaston, Pascale Le Gall, and Gabriel Pedroza</td>
</tr>
<tr>
<td>Formal Design and Verification of Zone Controller</td>
<td>Jie Qian, Jing Liu, Xiang Chen, and Junfeng Sun</td>
</tr>
</tbody>
</table>

### Analysis IV

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining Developer Mailing List to Predict Software Defects</td>
<td>Yu Zhang, Beijun Shen, and Yuting Chen</td>
</tr>
<tr>
<td>SHAP: Suppressing the Detection of Inconsistency Hazards by Pattern Learning</td>
<td>Wang Xi, Chang Xu, Wenhua Yang, Ping Yu, Xiaoxing Ma, and Jiang Lu</td>
</tr>
<tr>
<td>Automatic Classification of UML Class Diagrams from Images</td>
<td>Truong Ho-Quang, Michel R.V. Chaudron, Ingimar Samuelsson, Joel Hjaltaison, Bilal Karasneh, and Hafeez Osman</td>
</tr>
<tr>
<td>Runtime Checking for Paired Functions in Device Drivers</td>
<td>Jia-Ju Bai, Hu-Qiu Liu, Yu-Ping Wang, and Shi-Min Hu</td>
</tr>
</tbody>
</table>

### Testing IV

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>BP-Miner: Mining Paired Functions from the Binary Code of Drivers for Error Handling</td>
<td>Hu-Qiu Liu, Jia-Ju Bai, Yu-Ping Wang, and Shi-Min Hu</td>
</tr>
<tr>
<td>Data Flow Based Integration Testing for Embedded System Using Interaction Model</td>
<td>Hossain Muhammad Iqbal and Woo Jin Lee</td>
</tr>
<tr>
<td>An Efficient Method for Assessing the Impact of Refactoring Candidates on Maintainability Based on Matrix Computation</td>
<td>Ah-Rim Han and Doo-Hwan Bae</td>
</tr>
</tbody>
</table>

### Industry Paper II

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW FMEA for ISO-26262 Software Development</td>
<td>Hyung Ho Kim</td>
</tr>
<tr>
<td>Software Quality Control via Exit Criteria Methodology: An Industrial Experience Report</td>
<td>Xiaoping Zhao, Xiao Xuan, Aoyu Wang, Dong Liu, and Lingyun Zheng</td>
</tr>
<tr>
<td>API Document Quality for Resolving Deprecated APIs</td>
<td>Deokyoon Ko, Kyeongwook Ma, Sooyong Park, SunTae Kim, Dongsun Kim, and Yves Le Traon</td>
</tr>
</tbody>
</table>
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