

# 2014 APSEC

21st Asia-Pacific Software Engineering Conference

Software Engineering Challenges in Smarter World

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# 2014 APSEC

21st Asia-Pacific Software Engineering Conference

Software Engineering Challenges in Smarter World

## Final Program

December 1~4, 2014  
Jeju Island, Korea



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Welcome to APSEC 2014



Welcome from the General Chair

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.

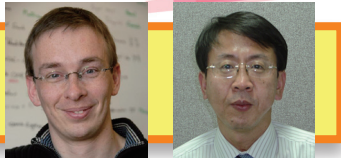
Sincerely yours,

**Sungdeok (Steve) Cha**

**General Chair, APSEC 2014**

Professor, Korea Unverisity, Korea.

## Welcome to APSEC 2014



### Message from the Program Chairs

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 (55 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

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## Keynote Speech I

**Speaker : Jeonghan Kim(Brian),**  
Samsung Electronics, Korea



## 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 IoTera(period) as a core of hyper-connected society, we introduce the leading(main) 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 Division, Korea in 2003 In Samsung. 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.

## Keynote Speech II

**Speaker : Mike Hoyer,**  
Mozilla, Canada



### 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.

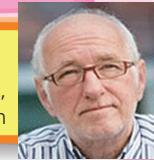
This talk will explore three related questions: how we got here, what the situation looks like from a practitioner's point of view, and what concrete steps we can take to jump-start intellectual inter-breeding. We will *\*not\** simply recommend that college courses somehow be made more "relevant", or 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 Hoyer** 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. Hoyer 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.

## Keynote Speech III

**Speaker: Hans van Vliet,**  
VU University Amsterdam

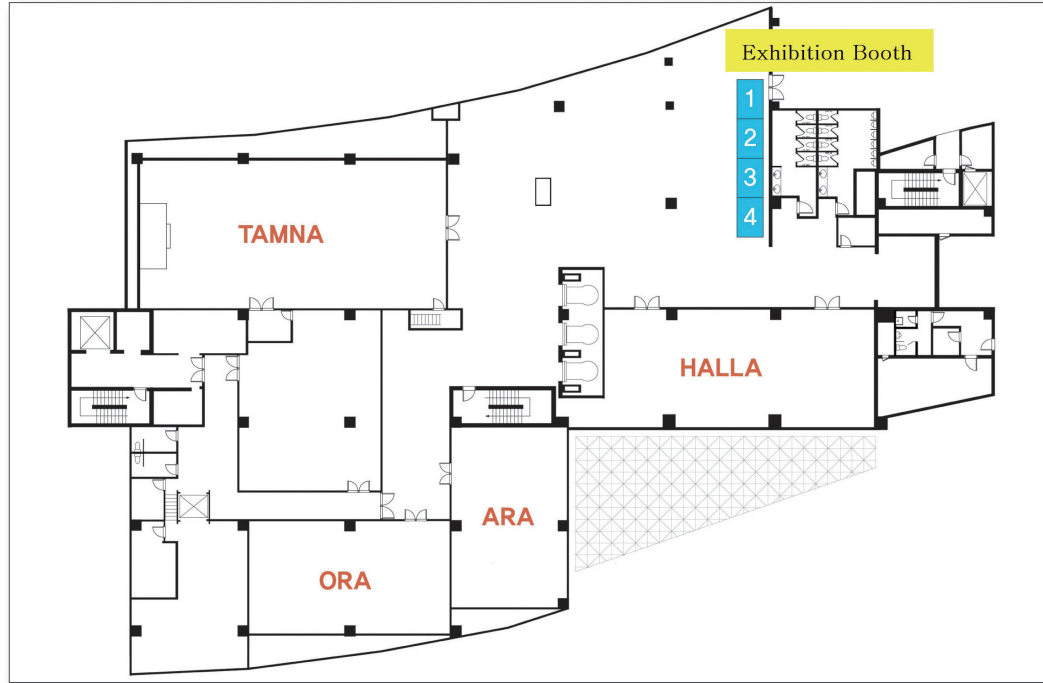


### Title : Architecting = Decision Making

**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.

Location Map



ASPEC2014 Information

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

Ramada Plaza Hotel Shuttle Bus Schedule

Venue	Date	Time
Jeju Airport to Ramada Plaza Jeju Hotel (Parking lot B1)	12.1(Mon)	10:00
		12:00
		15:00
		16:00
		17:00
		09:00
Ramada Plaza Jeju Hotel to Jeju Airport (Hotel Main Entrance)	12.4(Thurs)	15:00
		16:00
		17:00

Program at a Glance

MONDAY (Dec 1, 2014)				
	Tammra	Halla	Ora	Ara
08:00-09:00	Registration			
9:00-12:30		QuASoQ 2014	Software Engineering Education Workshop (SEEW)	<b>Tutorial I</b> Metamorphic Testing by Tsong Yueh Chen (Swinburne University of Technology)
12:30-14:00	Lunch			Lunch
14:00-17:30	<b>Tutorial III</b> Embedded Software Design in the Hardware/ Software Codesign Methodology by Soonhoi Ha (Seoul National University)			<b>Tutorial II</b> Using Artificial Intelligence Techniques for Requirements Engineering Research by Richa Sharma (IIT-D)

TUESDAY (Dec 2, 2014)				
	Tammra	Halla	Ora	Ara
08:00-	Registration			
08:30-09:00	Opening Ceremony			
09:00-10:00	<b>Keynote Speech I</b> 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	<b>Testing I</b>	<b>Modeling I</b>	<b>Design I</b>	<b>Architecture &amp; Requirement</b>
12:00-13:30	Lunch			
13:30-15:30	<b>Testing II</b>	<b>Modeling II</b>	<b>Design II</b>	<b>Empirical Software Engineering</b>
15:30-16:00	Coffee Break			
16:00-17:30	<b>Verification I</b>	<b>Analysis I</b>	<b>Industry Papers I</b>	<b>Short Papers</b>
18:00-21:00	Welcome Reception			

Detailed Program

WEDNESDAY (Dec 3, 2014)				
	Tammra	Halla	Ora	Ara
08:00-09:00	Registration			
09:00-10:00	<b>Keynote Speech II</b> Powers of Two: Cultures, Solitudes and Software Engineering by Mike Hoye, Mozilla, Canada			
10:00-10:30	Coffee Break			
10:30-12:00	Analysis II	Verification II	Testing III	
12:00-13:30	Lunch			
13:30-17:30	Excursion			
18:00-21:00	Banquet			

THURSDAY (Dec 4, 2014)				
	Tammra	Halla	Ora	Ara
08:00-09:00	Registration			
09:00-10:00	<b>Keynote Speech III</b> Architecting = Decision Making by Hans van Vliet, VU University Amsterdam			
10:00-10:30	Coffee Break			
10:30-12:00	Analysis III	Verification III	Testing IV	
12:00-13:30	Lunch			
13:30-15:30	Project Management	Analysis IV	Industry Papers II	
15:30-16:00	Closing Ceremony			

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** Gihwon Kwon (Kyonggi University, Korea) Tammra, 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) Tammra, 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) Tammra, 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



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, Yepang Liu, Chang Xu, Xiaoxing Ma, and Jian Lu

Modeling and Testing of GUIs Using IOLTS  
Shengbo Chen, Dashen Sun, Huaikou Miao, and Hongwei Zeng

Improving Testing Coverage for Safety-Critical System by Mutated Specification  
Tingliang Zhou, Haiying Sun, Jing Liu, Xiaohong Chen, and Dehui Du

A Framework for Distributed Testing of Timed Composite Systems  
Huu Nghia Nguyen, Fatiha Zaidi, and Ana Cavalli

**Verification I** Huaikou 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 Probabilities  
Mahsa Varshosaz and Ramtin Khosravi

LTL Formulae to Büchi Automata Translation: An Effective Translation Using On-the-Fly De-Generalization  
Laixiang Shan, Zheng Qin, Qingdi Meng, and Guiming Luo

**Modeling I** Ashish Sureka (IIIT 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

pIML—An Interrupt Program Modelling Language for Real-Time and Embedded Systems  
Xin Li, Yanhong Huang, Jianqi Shi, Jian Guo, Huibiao Zhu, and Yuanmin Xu

Formal Modeling and Analyzing the Reliability for Service Composition  
Guisheng Fan, Huiqun 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  
Asha Rajbhoj, Vinay Kulkarni, and Nikhil Bellarykar

Modeling Web Attachment Storage for Web Applications  
Vijay Jain and Amol Kolambkar

A Context-Role Based Modeling Framework for Engineering Adaptive Software Systems  
Tetsuo Tamai and Supasit Monpratarnchai

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  
Amel Mammam and Régine 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

SYNCEYE: 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 Dragomir, 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  
Pavneet 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** Eunkyong 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 Mori, Takashi Hino, Yosuke Hayakawa, Yasuyuki Tanaka, Shinichi Yamada, and Daisuke Miyazaki

**WEDNESDAY (Dec 3, 2014)****Keynote II** Yann-Gaël Guéhéneuc (Polytechnique Montréal, Canada) Tammra, 9:00~10:00

Speaker: Mike Hoyer, Mozilla, Canada  
 Title: Powers of Two: Cultures, Solitudes and Software Engineering

**Analysis II** Jongmoon Baik (KAIST, Korea) Tammra, 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 Amzal, 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, Geguang 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, Guoqing 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) Tammra, 9:00~10:00

Speaker: Hans van Vliet, VU University Amsterdam  
 Title: Architecting = Decision Making

**Analysis III** In-Young Ko (KAIST, Korea) Tammra, 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 Yoshiaki Fukazawa

GAIN: GPU-Based Constraint Checking for Context Consistency  
 Jun Sui, Chang Xu, Wang Xi, Yanyan Jiang, Chun Cao, Xiaoxin Ma, and Jian Lu

**Project Management** Chanjin Park (Advanced Institutes of Convergence Technology, Seoul National University, Korea) Tammra, 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, Yoshiaki Fukazawa, Ken Asoh, Kazuyoshi Takahashi, Kentarou Ogawa, Maki Mori, Takashi Hino, Yosuke Hayakawa, Yasuyuki Tanaka, Shinichi Yamada, and Daisuke Miyazaki

**Verification III** Wenhui Zhang (Institute of Software, Chinese Academy of Sciences, China) Halla, 10:30~12:00

Verifying Secure Interface Composition for Component-Based System Designs  
Cong Sun, Ning Xi, Jinku Li, Qingsong Yao, and Jianfeng Ma

Security Weaknesses Detection by Symbolic Analysis of Scenarios  
Boutheina Bannour, Jose Escobedo, Christophe Gaston, Pascale Le Gall, and Gabriel Pedroza

Formal Design and Verification of Zone Controller  
Jie Qian, Jing Liu, Xiang Chen, and Junfeng Sun

**Analysis IV** Il-Chul Yoon (State University of New York, Korea) Halla, 13:30~15:30

Mining Developer Mailing List to Predict Software Defects  
Yu Zhang, Beijun Shen, and Yuting Chen

SHAP: Suppressing the Detection of Inconsistency Hazards by Pattern Learning  
Wang Xi, Chang Xu, Wenhua Yang, Ping Yu, Xiaoxing Ma, and Jiang Lu

Automatic Classification of UML Class Diagrams from Images  
Truong Ho-Quang, Michel R.V. Chaudron, Ingimar Samúelsson, Jól Hjaltonson, Bilal Karasneh, and Hafeez Osman

Runtime Checking for Paired Functions in Device Drivers  
Jia-Ju Bai, Hu-Qiu Liu, Yu-Ping Wang, and Shi-Min Hu

**Testing IV** Ahyoung Sung (Samsung Electronics, Korea) Ora, 10:30~12:00

BP-Miner: Mining Paired Functions from the Binary Code of Drivers for Error Handling  
Hu-Qiu Liu, Jia-Ju Bai, Yu-Ping Wang, and Shi-Min Hu

Data Flow Based Integration Testing for Embedded System Using Interaction Model  
Hossain Muhammad Iqbal and Woo Jin Lee

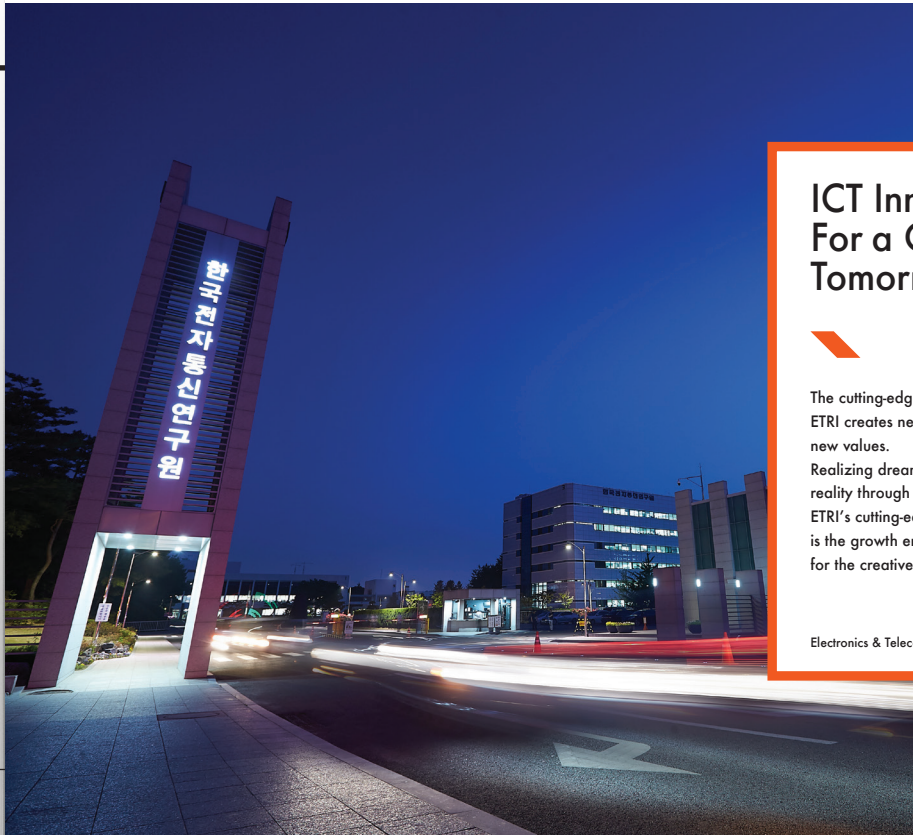
An Efficient Method for Assessing the Impact of Refactoring Candidates on Maintainability Based on Matrix Computation  
Ah-Rim Han and Doo-Hwan Bae

**Industry Paper II** Taeho Kim (ETRI, Korea) Ora, 13:30~15:30

SW FMEA for ISO-26262 Software Development  
Hyung Ho Kim

Software Quality Control via Exit Criteria Methodology: An Industrial Experience Report  
Xiaoqiong Zhao, Xiao Xuan, Aoyu Wang, Dong Liu, and Lingyun Zheng

API Document Quality for Resolving Deprecated APIs  
Deokyoon Ko, Kyeongwook Ma, Sooyong Park, Suntae Kim, Dongsun Kim, and Yves Le Traon



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- Device Solutions SW Academy(Architecture Training Development, Training system)
- Datacenter/Middleware
- Software Verification/Test
- Mobile Architecture Platform
- Software Engineering

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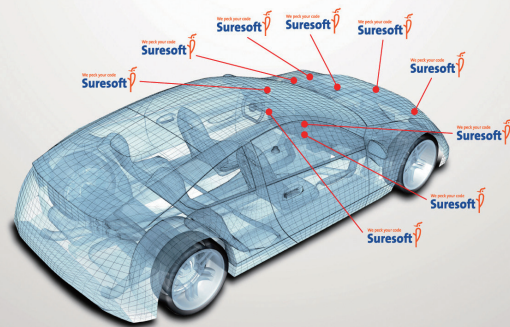
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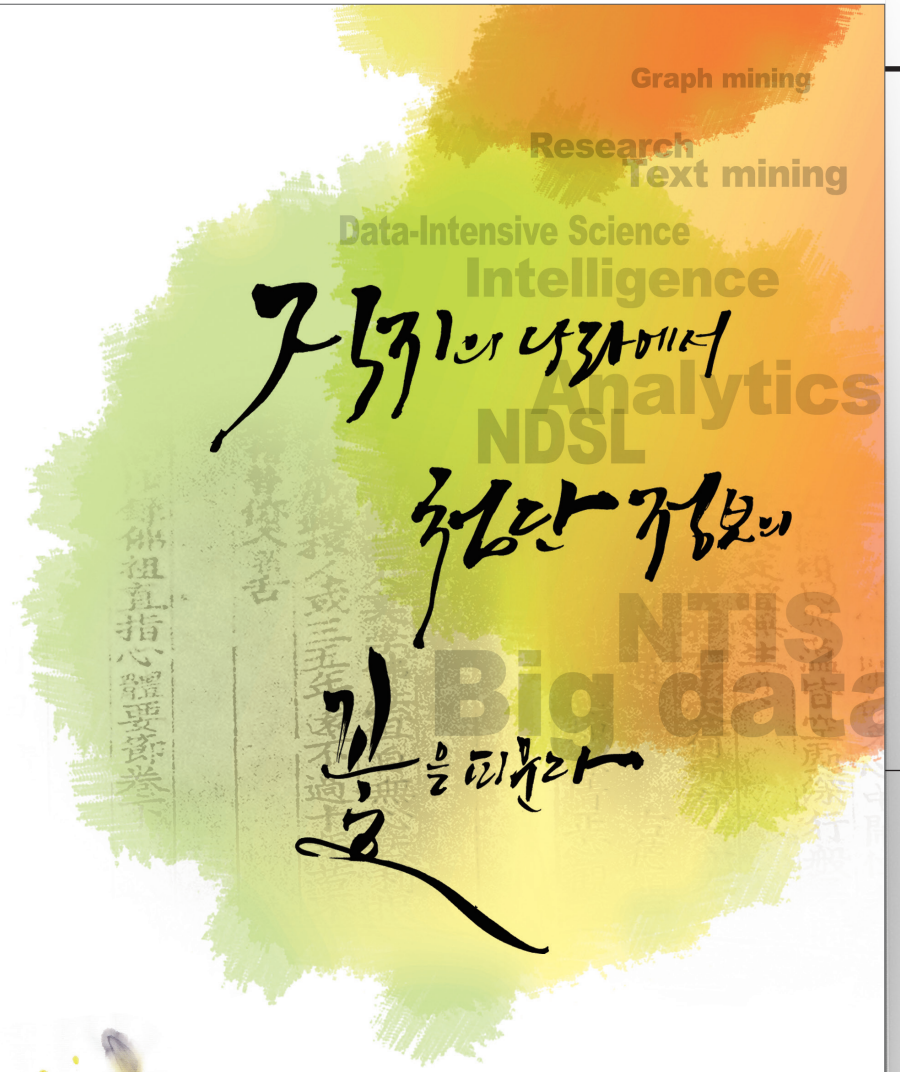
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