Thanks to our sponsors, co-organizers, and supporters:
Welcome to COMPSAC 2010!

Smart software solutions applied to diverse areas (including but not limited to Healthcare, energy, Social, Environmental, Industrial applications etc...) can improve efficiency, reliability, quality and simultaneously reduce costs. Requirement analysis, co-analysis/co-design, modelling, development, testing, measurement, verification, validation, performance, autonomy, safety, security, and dependability constraints are a few of numerous computing areas that can collectively contribute to these smart solutions and are some of the topics of interest. The program of COMPSAC 2010 features research and industrial practice papers with a wide range of topics, focusing, but not exclusively, on software and middleware development for distributed platforms, services computing, cloud computing, and mobile systems.

To properly engineer smart solutions, the foundations, methodologies, and mechanisms that support the design, modelling, and evaluation of software systems and computer applications must come from diverse sources. Multidisciplinary work, research and development of software prototypes, industry-university collaborations, all based on new emerging and critical technologies are of particular interest to this conference. All accepted papers have been published in the electronic proceedings by the IEEE Computer Society, indexed through INSPEC and EI Index, and automatically included in the IEEE digital library.

Thanks for your participation in COMPSAC 2010, from the key organizing team

Doo-Hwan Bae, General Chair
Sungdeok (Steve) Cha, Program Chair
Rajesh Subramanyan, Program Chair
Eric Wong, Program Chair
Sheikh Iqbal Ahamed, Workshops Chair
Sumi Helal, Panels Chair
Wolfgang Minker, Panels Chair
Carl K. Chang, Standing Committee Chair
COMPSAC 2010 Program at a Glance:

### Monday July 19, 2010: COMPSAC WORKSHOPS

<table>
<thead>
<tr>
<th>Time</th>
<th>Room</th>
<th>Meeting Room 2A (3rd floor)</th>
<th>Meeting Room 2B (3rd floor)</th>
<th>Meeting Room 3 (3rd floor)</th>
<th>Meeting Room 5 (Lower Level)</th>
<th>Classic 7 (7th floor)</th>
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<tbody>
<tr>
<td>8:30-10:00</td>
<td></td>
<td>REFS I</td>
<td>STA I</td>
<td>IWSC I</td>
<td>BINDIS I</td>
<td>CFSE</td>
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<tr>
<td>10:00-10:30</td>
<td>AM Break</td>
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<tr>
<td>10:30-12:00</td>
<td></td>
<td>REFS II</td>
<td>STA II</td>
<td>IWSC II</td>
<td>BINDIS II</td>
<td>STPSA I</td>
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<tr>
<td>12:00-13:30</td>
<td>Lunch</td>
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<tr>
<td>13:30-15:00</td>
<td></td>
<td>REFS III</td>
<td>CloudApp I</td>
<td>IWSC III</td>
<td>QUORS I</td>
<td>STPSA II</td>
</tr>
<tr>
<td>15:00-15:30</td>
<td>PM Break</td>
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<td>15:30-17:00</td>
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<td>REFS IV</td>
<td>CloudApp II</td>
<td>IWSC IV</td>
<td>QUORS II</td>
<td>STPSA III</td>
</tr>
</tbody>
</table>

### Tuesday July 20, 2010

**Grand Ballroom: Joint Session Opening and Welcome Remarks**
Doo-Hwan Bae, General Chair COMPSAC 2010
Carl K. Chang, Chair COMPSAC Standing Committee
Katsuyuki Yamazaki, Chair SAINT Standing Committee
Jim Isaak, 2010 IEEE Computer Society President
Norio Shiratori, President, Information Processing Society of Japan (IPSJ)
Jin Pyo Hong, President, Korea Institute of Information Scientists and Engineers (KIISE)

**Computer Society Outstanding Contribution Awards**
Presented by Stephen Yau, Founder, COMPSAC

**COMPSAC Best Paper Awards:**
COMPSAC Program Chairs: Sungdeok Cha, Rajesh Subramanyan, and Eric Wong

**SAINT Best Paper Awards:**
Yasu Okabe, Gul Agha, Choong Seon Hong, SAINT General Co-Chairs

**COMPSAC/SAINT Joint Keynote**
John Gustafson, Intel Labs, Santa Clara, USA
*Defining Computer “Speed”: An Unsolved Problem*
Chaired by: Vladimir Getov, Westminster University, UK

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<tr>
<th>Time</th>
<th>Room</th>
<th>Meeting Room 2 (3rd flr)</th>
<th>Meeting Room 3 (3rd flr)</th>
<th>Grand Ballroom A (5th flr)</th>
<th>Grand Ballroom C (5th flr)</th>
<th>Classic 7 (7th flr)</th>
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<tbody>
<tr>
<td>10:15-10:45</td>
<td>AM Break</td>
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<tr>
<td>10:45-12:15</td>
<td>Security and Dependability I</td>
<td>Software Architecture and Design I</td>
<td>Mobile &amp; Pervasive Computing I</td>
<td>Verification and Testing I</td>
<td>Panel I: Are We Headed Toward Smart Solutions?</td>
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<tr>
<td>12:15-13:30</td>
<td>Lunch</td>
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<tr>
<td>13:30-15:00</td>
<td>Grand Ballroom: COMPSAC Plenary Panel</td>
<td>Challenges and Future Directions of Software Technology</td>
<td>Chaired by: Stephen Yau</td>
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<tr>
<td>15:00-15:30</td>
<td>PM Break</td>
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<tr>
<td>15:30-17:00</td>
<td>Security and Dependability II</td>
<td>Software Architecture and Design II</td>
<td>Software Quality I</td>
<td>Verification and Testing II</td>
<td>Fast Abstract I</td>
<td></td>
</tr>
<tr>
<td>18:30-21:00</td>
<td>Grand Ballroom: COMPSAC/SAINT Joint Presidential Reception</td>
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**Wednesday, July 21, 2010**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:30-10:00</td>
<td>Grand Ballroom: COMPSAC/SAINT Joint Keynote</td>
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<tr>
<td></td>
<td>Kyo Chul Kang, POSTECH, Korea</td>
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<td></td>
<td><em>Software Engineering vs. Product Line Engineering</em></td>
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<td></td>
<td>Chaired by: Doo Hwan Bae, KAIST, Korea</td>
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<tr>
<td>10:00-10:30</td>
<td>AM Break</td>
</tr>
<tr>
<td>Room</td>
<td>Meeting Room 2 (3rd flr)</td>
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<tr>
<td>10:30-12:00</td>
<td>Security and Dependability III</td>
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<tr>
<td>12:00-13:30</td>
<td>Lunch</td>
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<tr>
<td>13:30-15:00</td>
<td>Afternoon: Tours of Secret Garden and National Museum of Korea – bus leaves from JWM at 12:30. Box lunch will be served on the bus. Return buses board at 17:30.</td>
</tr>
<tr>
<td>15:30-17:30</td>
<td>Grand Ballroom: COMPSAC 2010 BANQUET</td>
</tr>
<tr>
<td>18:30-20:30</td>
<td>Joint Planning Meeting: COMPSAC/SAINT 2011 (Munich, Germany)</td>
</tr>
<tr>
<td>20:30-22:00</td>
<td>All participants welcome – location will be announced at the registration desk</td>
</tr>
</tbody>
</table>

**Thursday, July 22, 2010**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:30-9:30</td>
<td>Grand Ballroom: COMPSAC/SAINT Joint Keynote</td>
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<tr>
<td></td>
<td>Tim Grance, National Institute of Standards and Technology, USA</td>
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<tr>
<td></td>
<td><em>Defining, Securing, and Standardizing Cloud Computing</em></td>
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<tr>
<td></td>
<td>Chaired by: Jeffrey Voas</td>
</tr>
<tr>
<td>9:30-10:00</td>
<td>AM Break</td>
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<tr>
<td>Room</td>
<td>Meeting Room 2 (3rd flr)</td>
</tr>
<tr>
<td>10:30-12:00</td>
<td>Grand Ballroom: COMPSAC/SAINT Joint Plenary Panel</td>
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<tr>
<td></td>
<td><em>The Future of the Internet</em></td>
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<td>Chaired by: Erji Kawai, Elisa Bertino, Sue Moon</td>
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<tr>
<td>12:00-13:30</td>
<td>Lunch</td>
</tr>
<tr>
<td>13:30-15:00</td>
<td>Smart Computing</td>
</tr>
<tr>
<td>15:00-15:30</td>
<td>PM Break</td>
</tr>
<tr>
<td>15:30-17:00</td>
<td>Real Time &amp; Embedded Systems</td>
</tr>
<tr>
<td>18:00-20:00</td>
<td>COMPSAC 2011 Planning Meeting (Invite only)</td>
</tr>
</tbody>
</table>
Friday, July 23, 2010

8:30-9:30   Grand Ballroom: COMPSAC/SAINT Joint Keynote
Hassan Gomaa, George Mason University
Software Variability, Evolution, and Adaptation
Chaired by: Sooyong Park, Sogang University, Korea

9:30-10:00  AM Break

10:00-12:00 Grand Ballroom: COMPSAC/SAINT Joint Concluding Panel
Green IT: From Devices to Applications
Chaired by: Tohru Asami, Sahra Sedigh

12:00-13:30 Lunch

Room  | Meeting Room 2A (3rd floor) | Meeting Room 2B (3rd floor) | Meeting Room 5 (Lower Level) | Meeting Room 3 (3rd floor) | Classic 7 (7th floor)
---|---|---|---|---|---
13:30-15:00 Fast Abstract II | ESAS I | ME I | STA | QUORS III
15:00-15:30 PM Break
15:30-17:00 SAPSE | ESAS II | ME II | QUORS IV

MONDAY JULY 19, 2010: COMPSAC Workshops

8:30-10:00   COMPSAC Workshops

IWSC 2010: The 7th International Workshop on Software Cybernetics
Session I
Room: Meeting Room 3 (3rd floor)

Welcome from Workshop Chair: Keunhyuk Yeom, Pusan National University, Korea
Remarks from Chair of Steering Committee: Stephen S. Yau, Arizona State University, USA
Program Overview: Program Co-Chair, Zhi Jin, Peking University, China

Keynote Address: Providing Robustness in Cyber Physical Systems
Song Hyuk Son, University of Virginia, USA

BINDIS 2010: The 3rd IEEE International Workshop on Barriers towards Internet-Driven Information Services
Session I: Service Creation
Chair: Kwang-Jae Kim, Pohang University of Science & Technology, Korea
Room: Meeting Room 5 (Lower Level)

The Framework of Medical Simulation Education and Evaluation System for Supporting SaaS
Jia Shang, JiJiang Yang, Qing Wang, Hui Pan

A Study of Improving the Accuracy of Software Effort Estimation Using Linearly Weighted Combinations
Chao-Jung Hsu Nancy Urbina Rodas, Chin-Yu Huang, Kuan-Li Peng
**CFSE 2010: The 2nd IEEE International Workshop on Computer Forensics in Software Engineering**

Chair: Jigang Liu, Metropolitan State University, USA  
Room: Classic 7 (7th floor)

*Dynamic Analysis for the Reconstruction of System Behavior Models*  
Vasileios Koutsoumpas, Kostas Kontogiannis, Peter Matthews

*Author Identification of Software Source Code with Program Dependence Graphs*  
Rong Chen, Lina Hong, Chunyan Lü, Wu Deng

*XIDR: A Dynamic Framework Utilizing Cross-Layer Intrusion Detection for Effective Response Deployment*  
Igors Svecs, Tanmoy Sarkar, Samik Basu, Johnny Wong

**REFS 2010: The 4th IEEE International Workshop on Requirements Engineering For Services**

Session I  
Chair: Lin Liu, Tsinghua University, China  
Room: Meeting Room 2A (3rd floor)

9:00 – 10:30:  
Keynote Speech  
Dimitris Karagiannis, University of Vienna

**STA 2010: The 2nd IEEE International Workshop on Software Test Automation**

Session I  
Room: Meeting Room 2B (3rd floor)

Keynote Speech

Following Keynote: paper presentation  
*An Optimization Strategy for Evolutionary Testing Based on Cataclysm*  
Meng Wang, Bixin Li, Zhengshan Wang, Xiaoyuan Xie

10:00-10:30 AM Break

10:30-12:00 COMPSAC Workshops

**IWSC 2010: The 7th International Workshop on Software Cybernetics**

Session II  
Chair: Tugkan Tuglular, Izmir Institute of Technology, Turkey  
Room: Meeting Room 3 (3rd floor)

*Optimizing Requirements Elicitation with an i* and Bayesian Network Integrated Modelling Approach*  
Haochi Wu, Lin Liu, Wenting Ma, Wenzhong Feng, Junjun Sun
Delegation Patterns in Workflow Systems
Hwai-Jung Hsu, Feng-Jian Wang

Entropy-based Measures of Heterogeneity of Software Structural Profile
Bei-Bei Yin, Ling-Zan Zhu, Kai-Yuan Cai

BINDIS 2010: The 3rd IEEE International Workshop on Barriers towards Internet-Driven Information Services
Session II: Service Management
Chair: Jijiang Yang, Tsinghua University, China
Room: Meeting Room 5 (Lower Level)

ULMS: An Accelerator for the Applications by Shifting Writing Log from Local Disk to Clouds
Li Zhou, Yong Zhang, Chunxiao Xing

WS-Sim: A Web Service Simulation Toolset with Realistic Data Support
Wei She, I-Ling Yen, Bhavani Thuraisingham

STPSA 2010: The 5th IEEE International Workshop on Security, Trust, and Privacy for Software Applications
Session I: Protocol
Session Chair: Bruce McMillin, Missouri University of Science & Technology, USA
Room: Classic 7 (7th floor)

Analysis of Two Watermarking Protocols based on Commutative Encryption
Moesfa S. Mohamad, Geong Sen Poh

Access Control Contracts for Java Program Modules
Carlos E. Rubio-Medrano, Yoonsik Cheon

Service Security Analysis Based on i*: An Approach from the Attacker Viewpoint
Tong Li, Lin Liu, Golnaz Elahi, Eric Yu, Barrett R. Bryant

T-Kernel/SS: A Secure Filesystem with Access Control Protection Using Tamper-Resistant Chip
Takeshi Yashiro, Masahiro Bessho, Shinsuke Kobayashi, Noboru Koshizuka, Ken Sakamura

Flexible Prime Number Labeling for Resource Limited Clients
Dongchan An, Seog Park

REFS 2010: The 4th IEEE International Workshop on Requirements Engineering For Services
Session II: Services Requirements Identification, Analysis and Management
Chair: Colette Roland, University of PARIS-1 Panthéon Sorbonne, France
Room: Meeting Room 2A (3rd floor)
10:30-10:55  Analyzing Interoperability Requirements for Adaptive Service-based Applications: A Goal-oriented Approach
Nauman A. Qureshi, Cu D. Nguyen, Anna Perini

Marco Aiello, Pavel Bulanov, Heerko Groefsema

11:20-11:40  A Scenario Based Approach for Service Identification
Suntae Kim, Minseong Kim, Vijayan Sugumaran, Sooyong Park

11:40-12:00  A Framework for the Elicitation and Analysis of Information Technology Service Requirements and Their Alignment with Enterprise Business Goals
Didar Zowghi, Zhi Jin

STA 2010: The 2nd IEEE International Workshop on Software Test Automation
Session II: Integration & Performance Testing
Room: Meeting Room 2B (3rd floor)

   Using Coupling Measure Technique and Random Iterative Algorithm for Inter-Class Integration Test Order Problem
Zhengshan Wang, Bixin Li, Lulu Wang, Meng Wang, Xufang Gong

   Normalized Adaptive Random Test for Integration Tests

   Performance Testing: Far from Steady State
Rajesh Mansharamani, Amol Khanapurkar, Benny Mathew, Rajesh Subramanyan

12:00-13:30  Lunch

13:30-15:00  COMPSAC Workshops

IWSC 2010: The 7th International Workshop on Software Cybernetics
Session III
Chair: Qianxiang Wang, Peking University, China
Room: Meeting Room 3 (3rd floor)

   Feedback Control Based Test Case Instantiation For Firewall Testing
Tugkan Tuglular, Gurcan Gercek

   Using Coverage Information to Guide Test Case Selection in Adaptive Random Testing
Zhi Quan Zhou

   A Parallel Implementation Strategy of Adaptive Testing
Hai Hu, Chang-Hai Jiang, Feng Ye, Kai-Yuan Cai, Dazhi Huang, Stephen S. Yau
QUORS 2010: The 4th IEEE International Workshop on Quality Oriented Reuse of Software
Session I: Service-Based Reuse
Chair: Marcel van Amstel, Eindhoven University of Technolog, Netherlands
Room: Meeting Room 5 (Lower Level)

Towards Reusing ESB Services in Different ESB Architectures
Indika Kumara, Chandana Gamage

Negotiating Service Requirements among Strategic Actors
Tuoye Xu, Tong Li, Lin Liu, Barrett R. Bryant

Aspect-Oriented Development of PHP-based Web Applications
Shin Nakajima, Keiji Hokamura, Naoyasu Ubayashi

STPSA 2010: The 5th IEEE International Workshop on Security, Trust, and Privacy for Software Applications
Session II: Privacy and Access Control
Session Chair: Sheikh Iqbal Ahamed, Marquette University, USA
Room: Classic 7 (7th floor)

Privacy Preserving Distributed Learning Clustering of Healthcare Data Using Cryptography Protocols
Ahmed M. Elmisery, Huaiguo Fu

Privacy Preserving Outlier Detection using Hierarchical Clustering Methods
Ajay Challagalla, S.S. Shivaji Dhiraj, D.V.L.N. Somayajulu, Tom S. Shaji Mathew, Saurav Tiwari, Syed Sharique Ahmad

Invited talk on Secure Cloud
Bhavani M. Thuraisingham, University of Texas at Dallas, USA

REFS 2010: The 4th IEEE International Workshop on Requirements Engineering For Services
Session III: Position Statements on Requirements Engineering for Services
Chair: Sooyong Park, Sogang University, Korea
Room: Meeting Room 2A (3rd floor)

13:30-13:50 A Requirement Maturity Measurement Approach Based on SKLSEWiki
Rong Peng, Qiang Ye, Mao Ye

13:51-14:10 Stakeholders-driven Requirements Semantics Acquisition for Networked Software Systems
Bin Wen, Peng Liang, Keqing He
14:11-14:30  
*Loosely-coupled SOA Service Access Provisioning*
Sean Gu

14:31-14:50  
*Elicitation of Goals in Requirements Engineering using Agile Methods*
A.M. Sen, K. Hemachandran

CloudApp 2010: The 1st IEEE International Workshop on Emerging Applications for Cloud Computing
Session I
Chair: Ki-Woong Park, KAIST, Korea
Room: Meeting Room 2B (3rd floor)

*LAYSI: A Layered Approach for SLA-Violation Propagation in Self-manageable Cloud Infrastructures*
Ivona Brandic, Vincent C. Emeakaroha, Michael Maurer, Schahram Dustdar Sandor Acs, Attila Kertesz, Gabor Kecskemeti

*Permission Management System: Permission as a Service in Cloud Computing*
Victor Echeverria, Lorie M. Liebrock, Dongwan Shin

*An Anomaly Detection Framework for Autonomic Management of Compute Cloud Systems*
Derek Smith, Qiang Guan, Song Fu

15:00-15:30  
PM Break

15:30-17:00  
COMPSAC Workshops

IWSC 2010: The 7th International Workshop on Software Cybernetics
Session IV
Room: Meeting Room 3 (3rd floor)

*Natural Language Processing based Detection of Duplicate Defect Patterns*
Qian Wu, Qianxiang Wang

Panel:  
*Future Directions of Software Cybernetics*
Chair:  
Kai-Yuan Cai, Beijing University of Aeronautics and Astronautics, China

Panelists:  
Zhi Jin, Peking University, China
Song Hyuy Son, University of Virginia, USA
Tugkan Tuglular, Izmir Institute of Technology, Turkey
Keunhyuk Yeom, Pusan National University, Korea

QUORS 2010: The 4th IEEE International Workshop on Quality Oriented Reuse of Software
Session II: Quality, Reuse, and Evolution
Chair: Hongji Yang, De Montfort University, UK
Room: Meeting Room 5 (Lower Level)
Test Sequence Generation from Combining Property Modeling and Program Slicing
Hua Li, Yong-guang Peng, Xin-ming Ye, Jing-yuan Yue

Software Fault Prediction Models for Web Applications
Le Truong Giang, Dongwon Kang, Doo-Hwan Bae

The Level of Decomposition Impact on Component Fault Tolerance
Atef Mohamed, Mohammad Zulkernine

STPSA 2010: The 5th IEEE International Workshop on Security, Trust, and Privacy for Software Applications
Session III: Systems and Models
Session Chair: Mohammad Zulkernine, Queen’s University, Canada
Room: Classic 7 (7th floor)

Thoshitha T. Gamage, Bruce M. McMillin, Thomas P. Roth

Natural Language Watermarking Based on Syntactic Displacement and Morphological Division
Mi-Young Kim, Osmar R. Zaiane, Randy Goebel

Semantic Analysis of UML2.0 Sequence Diagram Based on Model Transformation
Meixhia Zhu, Hanpin Wang, Wei Jin, Zizhen Wang, Chunxiang Xu

Environmental Obfuscation of a Cyber Physical System - Vehicle Example
Jason Madden, Bruce McMillin, Anik Sinha

REFS 2010: The 4th IEEE International Workshop on Requirements Engineering For Services
Session IV
Room: Meeting Room 2A (3rd floor)

Panel: Requirements Engineering for Smart Services?
Chair: Eric Yu, University of Toronto, Canada
Panelists: Marco Aiello, University of Groningen, Netherlands
Zhi Jin, Peking University, China
Dimitris Karagiannis, University of Vienna, Austria
Colette Roland, University of PARIS-1 Panthéon Sorbonne, France

CloudApp 2010: The 1st IEEE International Workshop on Emerging Applications for Cloud Computing
Session II
Chair: Ivona Brandic, Vienna University of Technology, Austria
Room: Meeting Room 2B (3rd floor)
The Case for Content Search of VM Clouds
Mahadev Satyanarayanan, Wolfgang Richter, Glenn Ammonsy, Jan Harkes, Adam Goode

FalconEye: Data Center Status Extraction using Vision-Transformation Techniques
Ki-Woong Park, Woomin Hwang, Kyu Ho Park

Hassan Takabi, James B.D. Joshi, Gail-Joon Ahn

TUESDAY JULY 20, 2010

8:30-10:15  Joint Opening Session Welcome Remarks, and Keynote
            Doo-Hwan Bae, General Chair COMPSAC 2010
            Carl K. Chang, Chair COMPSAC Standing Committee
            Katsuyuki Yamazaki, Chair SAINT Standing Committee
            Jim Isaak, 2010 IEEE Computer Society President
            Norio Shiratori, President, Information Processing Society of Japan (IPSJ)
            Jin Pyo Hong, President, Korea Institute of Information Scientists and Engineers (KIISE)

            Computer Society Outstanding Contribution Awards
            presented by Stephen Yau, Founder, COMPSAC

            COMPSAC Best Paper Awards:
            COMPSAC Program Chairs: Sungdeok Cha, Rajesh Subramanyan, and Eric Wong

            SAINT Best Paper Awards:
            SAINT General Co-Chairs: Yasuo Okabe, Gul Agha, Choong Seon Hong

            COMPSAC/SAINT Joint Keynote: John Gustafson, Intel Labs Santa Clara, USA
            Defining Computer “Speed”: An Unsolved Problem
            Chaired by: Vladimir Getov, Westminster University, UK

10:15-10:45  Break

10:45-12:15  COMPSAC Paper Sessions

Security & Dependability I
Session Chair: Axel Hunger, Universitat Duisburg Essen, Germany
Room: Meeting Room 2 (3rd floor)

    Towards Secure Virtual Directories: A Risk Analysis Framework
    William R. Claycomb, Dongwan Shin

    Using a Hypervisor to Migrate Running Operating Systems to Secure Virtual Machines
    Tsutomu Nomoto, Yoshihiro Oyama, Hideki Eiraku, Takahiro Shinagawa, Kazuhiko Kato

    A New Concurrent Checkpoint Mechanism for Real-time and Interactive Processes
    Jianwei Liao, Yutaka Ishikawa
Software Architecture & Design I
Session Chair: Hongji Yang, Demontfort University, UK
Room: Meeting Room 3 (3rd floor)

An Analysis of Tool-based Research in Software Engineering
Jonas Helming, Maximilian Koegel, Hoda Naguib, Miriam Schmidberger, Florian Schneider, Bernd Brügge

A Task-Oriented Navigation Approach to Enhance Architectural Description Comprehension
Wenhui Zhu, Tao Yang, Gang Huang, Yanchun Sun, Hong Mei

Improving Software Performance and Reliability with an Architecture-based Self-Adaptive Framework
Xu Zhang, Chung-Horng Lung

Mobile & Pervasive Computing I
Session Chair: Junehwa Song, KAIST, Korea
Room: Grand Ballroom A (5th floor)

An Approach for Ensuring Robust Safeguard against Location Privacy Violation
Chowduhury S. Hasan, Sheikh I. Ahamed

Design and Implementation of a Middleware for Development and Provision of Stream-based Services
Seungwoo Kang, Youngki Lee, Sunghwan Ihm, Souneil Park, Su-Myeon Kim, Junehwa Song

geoXmart - a Marketplace for Geofence-Based Mobile Services
Ulrich Bareth, Axel Küpper, Peter Ruppel

Verification & Testing I
Session Chair: Gregg Rothermel, University of Nebraska at Lincoln, USA
Room: Grand Ballroom C (5th floor)

Applying Particle Swarm Optimization to Pairwise Testing
Xiang Chen, Qing Gu, Jingxian Qi, Daoxu Chen

Using Load Tests to Automatically Compare the Subsystems of a Large Enterprise
Haroon Malik, Bram Adams, Ahmed Hassan, Paraminder Flora, Gilbert Hamann

GenRed: A Tool for Generating and Reducing Object-Oriented Tests
Hojun Jaygarl, Kai-Shin Lu, Carl Chang
COMPSAC Panel I: Are We Headed Toward Smart Solutions?
Chair: Rajesh Subramanyan, Siemens, USA
Room: Classic 7 (7th floor)

12:15-13:30  Lunch

13:30-15:00  COMPSAC Plenary Panel, Grand Ballroom (5th floor)
Challenges and Future Directions of Software Technology
Chaired by Stephen S. Yau, Arizona State University, USA

Panelists: Vladimir Getov, University of Westminster, UK
John Gustafson, Intel Labs Santa Clara, USA
Kane Kim, University of California, Irvine, USA
Hong Mei, Peking University, China
Bhavani Thuraisingham, University of Texas at Dallas, USA

15:00-15:30  PM Break

15:30-17:00  Paper Sessions

Security & Dependability II
Session Chair: Sheikh Iqbal Ahamed, Marquette University, USA
Room: Meeting Room 2 (3rd floor)

Representing and Reasoning about Web Access Control Policies
Gail-Joon Ahn, Hongxin Hu, Joohyung Lee, Yunsong Meng

A Novel Rubbing Encryption Algorithm and the Implementation of a Web Based One-time Password Token
Fred Cheng

IPTV Micropayment System based on Hash Chain using RFID-USB Module
Yoon-Su Jeong, Ning Sun, Sang-Ho Lee

Software Architecture & Design II
Session Chair: Lin Liu, Tsinghua University, China
Room: Meeting Room 3 (3rd floor)

Security in Context: Analysis and Refinement of Software Architectures
Thomas Heyman, Riccardo Scandariato, Wouter Joosen

Key Roles of Session State: Not against REST Architectural Style
Takeru Inoue, Hiroshi Asakura, Hiroshi Sato, Noriyuki Takahashi

An Adaptation Approach for Component-based Software Architecture
Makhlouf Derdour, Philippe Roose, Marc Dalmau, Nacéra Ghoualmi Zine, Adel Alti
Software Quality I
Session Chair: Mohammad Zulkernine, Queen’s University, Canada
Room: Grand Ballroom A (5th floor)

Team Factors and Failure Processing Efficiency: An Exploratory Study of Closed and Open Source Software Development
Michael Grottke, Lars M. Karg, Arne Beckhaus

Target Setting for Technical Requirements in Time-stamped Software Quality Function Deployment
Xiaoqing (Frank) Liu, Praveen Inuganti, Kunio Noguchi, Yuji Kyoya

Towards a General Framework for Evaluating Software Development Methodologies
Shokoofeh Hesari, Hoda Mashayekhi, Raman Ramsin

Verification & Testing II
Session Chair: Anestis Toptsis, York University, Canada
Room: Grand Ballroom C (5th floor)

Effective Software Bug Localization Using Spectral Frequency Weighting Function
Hua Jie Lee, Lee Naish, Kotagiri Ramamohanarao

Detect Related Bugs from Source Code Using Bug Information
Deqing Wang, Mengxiang Lin, Hui Zhang, Hongping Hu

Model of Software Reliability with Coxian Distribution of Duration of Intervals between Errors Detections
Vladimir Bubnov, Alexey Tyrva, Anatoly Khomonenko

Fast Abstract I
Session 1: Smarter and Greener Computing
Session Chair: Eric Wong, University of Texas at Dallas, USA
Room: Classic 7 (7th floor)

Efficient Color Image Compression using Demosaicing
Evgeny Gershikov, Moshe Porat

Using Semantics-Enabled Information Retrieval in Requirements Tracing: An Ongoing Experimental Investigation
Anas Mahmoud, Nan Niu

An Empirical Comparison of Fault-prone Module Detection Approaches: Complexity Metrics and Text Feature Metrics
Osamu Mizuno, Hideaki Hata
Green Computing Methodology for Next Generation Computing Scientists
Chia-Tien Dan Lo, Kai Qian

18:30-21:00  Presidential Reception
Location: Grand Ballroom

WEDNESDAY JULY 21, 2010

8:30-10:00  COMPSAC/SAINT Joint Keynote: Kyo Chul Chang, POSTECH, Korea
Software Engineering vs. Product Line Engineering
Grand Ballroom

10:00-10:30  AM Break

10:30-12:00  Paper Sessions

Security & Dependability III
Session Chair: Feng-Jian Wang, National Chiao Tung University, Taiwan
Room: Meeting Room 2 (3rd floor)

A Consistency Model for Identity Information in Distributed Systems
Thorsten Hoellrigl, Jochen Dinger, Hannes Hartenstein

AntiBot: Clustering Common Semantic Patterns for Bot Detection
Younghee Park, Qinghua Zhang, Douglas Reeves, Vikram Mulukutla

A Weaker Knowledge Connectivity Condition Sufficient for Fault-Tolerant Consensus with Unknown Participants
Jichiang Tsai, Che-Cheng Chang

Software Evolution and Maintenance I
Session Chair: Mikio Aoyama, Nanzan University, Japan
Room: Meeting Room 3 (3rd floor)

Metamodel Recovery from Multi-Tiered Domains Using Extended MARS
Qichao Liu, Barrett Bryant, Marjan Mernik

Reasoning about Human Intention Change for Individualized Runtime Software Service Evolution
Hua Ming, Carl K. Chang, Katsunori Oyama, Hen-I Yang

An Interactive Change Impact Analysis based on an Architectural Reflexion Model Approach
Tae-hyung Kim, Kimun Kim, Woomok Kim
Mobile and Pervasive Computing II  
Session Chair: William Chu, Tunghai University, Taiwan  
Room: Grand Ballroom A (5th floor)

 ucR Based Interoperable Spatial Information Model for Realizing Ubiquitous Spatial Infrastructure  
Yukihiko Shigesada, Shinsuke Kobayashi, Noboru Koshizuka, Ken Sakamura

 A Personalized Navigation Guide using a Social-Spatial Ontology  
Hyunho Park, Gonzalo Huerta-Canepa, Dongman Lee, Ho Namkoong, Byoungoh Kim, Soon J. Hyun

 A Scalable and Efficient Path Management Scheme for Internet-based Sensor Data Delivery Infrastructure  
Kyungmin Cho, Younghyun Ju, Sungjae Jo, Yunseok Rhee, Junehwa Song

Requirements Engineering  
Session Chair: Soo-Yong Park, Sogang University, Korea  
Room: Grand Ballroom C (5th floor)

 A Usability-pattern-based Requirements-analysis Method to Bridge the Gap between User Tasks and Application Features  
Sang-Hyun Lee, In-Young Ko, Sungwon Kang, Dan-Hyung Lee

 Managing Consistency Between Textual Requirements, Abstract, Interactions and Essential Use Cases  
Massila Kamalrudin, John Grundy, John Hosking

 Variability Modeling for Product Line Viewpoints Integration  
Nan Niu, Juha Savolainen, Yijun Yu

Doctoral Symposium  
Session Chair: Sahra Sedigh, Missouri University of Science & Technology, USA  
Room: Classic 7 (7th floor)

 Human Desire Inference pRocess Based on Affetive Computing  
Jeyoun Dong, Hen-I Yang, Katsunori Oyama, Carl K. Chang

12:00-18:30  Board bus for tours of Secret Garden and National Museum. Lunch will be served on the bus. Returning buses board at 17:30, with estimated arrival time back at JW Marriott at 18:30.

18:30-20:30  COMPSAC 2010 Banquet  
Location: Grand Ballroom, JW Marriott
20:30-22:00 Joint Planning Meeting: COMPSAC/SAINT 2011 (Munich, Germany) – All invited!

THURSDAY JULY 22, 2010

8:30-10:00 COMPSAC/SAINT Joint Keynote: Tim Grance, National Institute of Standards and Technology, USA
Defining, Securing, and Standardizing Cloud Computing
Chaired by Jeffrey Voas
Grand Ballroom

10:00-10:30 Break

10:30-12:00 COMPSAC/SAINT Joint Plenary Panel: Future of the Internet
Chaired by: Eiji Kawai, NICT, Japan
Elisa Bertino, Purdue University, USA
Sue Moon, KAIST, Korea
Room: Grand Ballroom
Panelists: Hiroaki Harai, NICT, Japan
Kohei Shiomoto, NTT, Japan
Younghee Lee, KCC/KAIST, Korea

12:00-13:30 Lunch
13:30-15:00 Paper Sessions

Smart Computing
Session Chair: Jong Kim, Pohang University of Science & Technology, Korea
Room: Meeting Room 2 (3rd floor)

PAAKL: Password Authentication with Behavioral Metrics
Anestis Toptsis, Joshua Majonis

Behavior Monitoring in Self-healing Service Oriented Systems
Harald Psaier, Florian Skopik, Daniel Schall, Schahram Dustdar

A Petri Net-Based Method for RFID Event Detection
Chunxiang Xu, Yu Huang, Wanling Qu, Hanpin Wang, Xiaojuan Ban

Software Evolution and Maintenance II
Session Chair: Atilla Elçi, Middle East Technical University NCC, North Cyprus
Room: Meeting Room 3 (3rd floor)

Change Impact Analysis Based on a Taxonomy of Change Types
Xiaobing Sun, Bixin Li, Chuanqi Tao, Wanzhi Wen, Sai Zhang

An Ontology-Based Approach to Reengineering Enterprise Software for Cloud Computing
Hong Zhou, Hongji Yang, Andrew Hugill
Synchronized Architecture Evolution in Software Product Line using Bidirectional Transformation
Liwei Shen, Xin Peng, Jiayi Zhu, Wenyun Zhao

Performance Engineering
Session Chair: Xiaoying Bai, Tsinghua University, China
Room: Grand Ballroom A (5th floor)

An Optimized Checkpointing Based Learning Algorithm for Single Event Upsets
S. Sharanyan, Arvind Kumar

Exploring Query Optimization in Programming Codes by Reducing Run-Time Execution
Venkata Krishna Suhas Nerella, Swetha Surapaneni, Sanjay Kumar Madria, Thomas Weigert

Verification & Testing III
Session Chair: Byoungju Choi, Ewah Woman’s University, Korea
Room: Grand Ballroom C (5th floor)

A Study of Cost-Cognizant Test Case Prioritization Using Genetic Algorithm with Test History
Yu-Chi Huang, Chin-Yu Huang, Jun-Ru Chang, Tsan-Yuan Chen

Minimising the Preparation Cost of Runtime Testing based on Testability Metrics
Alberto Gonzalez-Sanchez, Éric Piel, Hans-Gerhard Gross, Arjan J.C. van Gemund

A Study on the Applicability of Modified Genetic Algorithms for the Parameter Estimation of Software Reliability Modeling
Chao-Jung Hsu, Chin-Yu Huang

Formal Methods
Session Chair: Tugkan Tuglular, Izmir Institute of Technology, Turkey
Room: Classic 7 (7th floor)

Specifying Time-sensitive Systems with TLA+
Hehua Zhang, Ming Gu, Xiaoyu Song

Transformation Rules for Synthesis of UML Activity Diagram from Scenario-based Specification
Sungwon Kang, Hyunho Kim, Jongmoon Baik, Hojin Choi, Changsup Keum

A Game Perspective of Refinement of Component Models
Zizhen Wang, Hanpin Wang, Yongzhi Cao, Wanling Qu, Wei Jin, Meixia Zhu

15:00-15:30 PM Break
15:30-17:00 Paper Sessions
Real-Time & Embedded Systems  
**Session Chair:** Bruce McMillin, Missouri University of Science & Technology, USA  
**Room:** Meeting Room 2 (3rd floor)  

*An Automatic Configuration Approach to Improve Real-Time Application Throughput While Attaining Determinism*  
Xiaowei Zhang, Donggang Cao, Yunpeng Gao, Xiangqun Chen, Hong Mei  

*SAT: Switchable Address Translation for Flash Memory Storages*  
Yeonseung Ryu  

*Supporting Design Enhancement by Pattern-based Transformation*  
Nien-Lin Hsueh, Peng-Hua Chu, Pao-Ann Hsiung, Min-Ju Chuang, William Chu, Chih-Hung Chang, Chorng-Shiuh Koong, Chih-Hsiong Shih  

Web Engineering  
**Session Chair:** Sheikh Iqbal Ahamed, Marquette University, USA  
**Room:** Meeting Room 3 (3rd floor)  

*A Petri-net Based Method for Data Validation of Web Services Composition*  
Chunxiang Xu, Wanling Qu, Hanpin Wang, Zizhen Wang, Xiaojuan Ban  

*Process Patterns for Web Engineering*  
Reza Babanezhad, Yusef Mehrdad Bibalan, Raman Ramsin  

*Modeling BPEL and BPEL4People with a Timed Interruptable π calculus*  
Wei Jin, Hanpin Wang, Yongzhi Cao  

Software Quality II  
**Session Chair:** Qianxiang Wang, Peking University, China  
**Room:** Grand Ballroom A (5th floor)  

*QoS-based Dynamic Web Service Composition with Ant Colony Optimization*  
Wei Zhang, Carl K. Chang, Taiming Feng, Hsin-yi Jiang  

*Filtering of Inconsistent Software Project Data for Analogy-based Effort Estimation*  
Tuan Khanh Le Do, Kyung-A Yoon, Yeong-seok Seo, Doo-Hwan Bae  

*An Efficient Source Allocation Approach for QoS Support in P2PTV Systems*  
Yaw-Chung Chen, Shang-Shu Lee, Kuan-Teng Chen
Verification & Testing IV  
Session Chair: Rajesh Subramanyan, Siemens, USA  
Room: Grand Ballroom C (5th floor)

  *Timing Analyzing for Systems with Task Execution Dependencies*  
Yue Lu, Thomas Nolte, Iain Bate, Christer Norström

*Service-Oriented Composition and Verification of Abstract Components*  
Yunja Choi

COMPSAC Panel II: Towards New Roles and System Architecture Supporting the Full Life Cycle of Smart Spaces  
Chaired by: Sumi Helal, University of Florida  
Room: Classic 7 (7th floor)

Panelists:  
Tatsuya Yamazaki, NICT, Japan  
Max Mühlhäuser, Technische Universität Darmstadt, Germany  
Gary Schneider, IBM Corporation, China

18:00-21:00  
COMPSAC 2011 PLANNING MEETING (Invite only)

FRIDAY JULY 23, 2010

8:30-10:00  
COMPSAC/SAINT Joint Keynote: Hassan Gomaa, George Mason University  
*Software Variability, Evolution, and Adaptation*  
Chaired by: Sooyong Park, Sogang University, Korea  
Grand Ballroom

10:00-10:30  
AM Break

10:30-12:00  
COMPSAC/SAINT Joint Concluding Panel: Green IT – From Devices to Applications  
Chaired by: Tohur Asami, The University of Tokyo, Japan  
Sahra Sedigh, Missouri University of Science & Technology  
Room: Grand Ballroom

Panelists:  
Shinji Tsuji, Hitachi Ltd., Japan  
Akira Tajima, IBM Research, Japan  
Ali R. Hurson, Missouri University of Science & Technology, USA  
Eunsook Kim Eunah, ETRI, Korea

12:00-13:30  
Lunch
13:30-15:00  COMPSAC Workshops

Fast Abstract II
Session II: Robust and High Quality Computing
Chair: Sungdeok Cha, Korea University, Korea
Room: Meeting Room 2A (3rd floor)

A Model-based Design Tool of Automotive Software Architecture
Jeong-Si Kim, Chaedeok Lim, TaeMan Han

A Method for Detecting Defects in Source Codes Using Model Checking Techniques
Yoshitaka Aoki, Saeko Matsuura

Reconnection of the Pre-assigning Peers in the Seamless Video Streaming
Ilhom Karimov, Nuriddin Rayimov, Liu Jing, Jungwook Song, Sungchol Cho, Sunyoung Han, Chinchol Kim

A Know-How Recommendation System for a Software Engineering Project Course By Using the Content Filtering Technique
Rika Kawai, Atsuo Hazeyama

ESAS 2010: The 5th IEEE Workshop on Engineering Semantic Agent Systems
Session I
Chair: Sahra Sedigh, Missouri University of Science & Technology, USA
Room: Meeting Room 2B (3rd floor)

13:30  Opening Remarks by Atilla Elçi

13:40  Invited Speech: Semantic Image Retrieval Model for Sharing Experiences in Social Networks
Aslı Apaydın, Duygu Çelik, Atilla Elçi

14:10  Ontology-based QoS Queuing Model for Selection of Web Services Servers
Duygu Çelik, Atilla Elçi

ME 2010: The 2nd IEEE International Workshop on Middleware Engineering
Session I: Middleware Architectures
Chair: Tor-Morten Grønli, Brunel University, UK
Room: Meeting Room 5 (Lower Level)

Middleware Support for Mobile Social Ecosystems
Alessandra Toninelli, Animesh Pathak, Amir Seyedi, Roberto Sepicys Cardoso, Valérie Issarny

A Middleware for Personal Smart Spaces
Manal Al-Bahlal, Jalal Al-Muhtadi
Message Oriented Middleware Support for Mobile Ad Hoc Data Sharing
Hongjun Yu, Rong Chen, Zhenjun Du

STA 2010: The 2nd IEEE International Workshop on Software Test Automation
Session III: Test Prioritization, Regression Testing, and Formal Aspects
Room: Meeting Room 3 (3rd floor)

An Approach to Regression Test Selection Based on Hierarchical Slicing Technique
Chuanqi Tao, Bixin Li, Xiaobing Sun, Chongfeng Zhang

Approximation of CFL by Regular Languages for Concurrent Program Verification
Supratik Mukhopadhyay, Sukhamay Kundu

Supporting Concern-Based Regression Testing and Prioritization in a Model-Driven Environment using TDE/UML
Roberto S. Filho, Christof J. Budnik, William M. Hasling, Monica McKenna, Rajesh Subramanyan

QUORS 2010: The 4th IEEE International Workshop on Quality Oriented Reuse of Software
Session III: Model-Driven Techniques
Chair: Xiaodong Liu, Edinburgh Napier University, UK
Room: Classic 7 (7th floor)

Applied MDA for Embedded Devices: Software design and code generation for a low-cost
Michael Lettner, Michael Tschernuth

The Right Tool for the Right Job: Assessing Model Transformation Quality
M.F. van Amstel

A Model Expansion Method in Schema-based Model Evolution
Tsung Lee, Jhih-Syan Hou

15:00-15:30 PM Break

15:30-17:00 COMPSAC Workshops

ESAS 2010: The 5th IEEE Workshop on Engineering Semantic Agent Systems
Session II
Chair: Atilla Elçi, Middle East Technical University NCC, North Cyprus
Room: Meeting Room 2B (3rd floor)

15:30 Modeling Cyber-Physical Systems with Semantic Agents
Jing Lin, Sahra Sedigh, Ann Miller

16:00 On Slicing Semantic Web Services
Chengying Mao
16:30  Closing Remarks by Atilla Elçi

ME 2010: The 2nd IEEE International Workshop on Middleware Engineering
Session II: Middleware Applications
Chair: Alessandra Toninelli, INRIA Paris-Rocquencourt, France
Room: Meeting Room 5 (Lower Level)

A Context-Aware Meeting Room—Mobile Interaction and Collaboration using Android, Java ME and Windows Mobile
Tor-Morten Gronli, Jarle Hansen, Gheorgihita Ghinea

MiRE4OWL: Mobile Rule Engine for OWL
Taehun Kim, Insuk Park, Soon J. Hyun, Dongman Lee

SAPSE 2010: The 2nd International Workshop on Security Aspects of Process and Services Engineering
Chair: Stelvio Cimato, Università degli Studi di Milano
Location: Meeting Room 3 (3rd floor)

Modeling and Verification of an Automatic Train Protection System
Xijiao Xiong, Jing Liu, Miaomiao Zhang, Zuohua Ding

Toward Cloud-based Key Management for Outsourced Databases
Nadia Bennani, Ernesto Damiani, Stelvio Cimato

QUORS 2010: The 4th IEEE International Workshop on Quality Oriented Reuse of Software
Session IV: Optimal Components and Practice
Chair: Yang Li, Intelligent Systems Research Centre, British Telecom
Room: Classic 7 (7th floor)

COTS Integrations: Effort Estimation Best Practices
Anoop Kumar P, Sathia Narayanan, Vijayalakshmi Mallenahalli Siddaiah

Optimizing Software Quality Assurance
Omar Alshathry
Thank you to all COMPSAC 2010 Organizers!

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  Atilla Elçi, Middle East Technical University NCC, North Cyprus
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  Axel Hunger, Duisburg-Essen, Germany
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  Junehwa Song, KAIST, Korea
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  Bertrand du Castel, Schlumberger
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- **Fast Abstracts**
  Dae-Kyoo Kim, Oakland University, USA

- **Doctoral Symposium**
  Gregg Rothermel, University of Nebraska, Lincoln, USA

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