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Introduction

In academia, staggering and extensive research activities on software process can be seen happening, which encompasses a range of topics that cover from requirement analysis, design, implementation to verification and validation, maintenance, and deployment. As interesting as the research activities may be, often the research lacks the real practice experience. The real practice takes place in the industries, where the theories are put into practice in actual settings. The only downside to this is; the lack of research value in their product development. For instance, a number of off-the-shelf systems robustness performance, and they often missed out the usability aspect of the systems mainly interaction and responsiveness. Synergizing academic and industry will definitely complement each other and at the same time, it will be able to reduce the gap between the industries and the academia. This conference will be the platform for the academicians, researchers, and practitioners to discuss, among others, the role of institutions of higher learning in equipping the students with the right skills set for the industries, the ways we can realize theoretical research findings in actual context, and the role of industries in strengthening research activities and development. These efforts reflect the aim of synergizing research and practice towards quality software.

APSEC 2009 CO-LOCATED EVENT

PARALLEL SESSIONS OF WORKSHOP & TUTORIAL (30 NOVEMBER 2009)

We welcome all APSEC 2009 delegates to join the co-located event on 30 November 2009 at Universiti Sains Malaysia, Penang, Malaysia. The event includes the 1st Software Engineering Postgraduate Workshop (SEPoW 2009) and parallel sessions of workshop and tutorial. First Software Engineering Postgraduates Workshop (SEPoW 2009) is an international forum for Masters, M.Phil. and Ph.D. postgraduates who are performing research in software engineering. SEPoW 2009 will be hosted for the first time in Malaysia in conjunction with 16th APSEC 2009. Postgraduates will converge to present and discuss their research with peers and experienced researchers in a constructively critical atmosphere. The workshop provides Mentoring Panel consisting of prominent researchers in different areas of software engineering who will actively reflect on the research work and will contribute to the discussions. In addition, the co-located event includes a half day parallel sessions of two workshops and a tutorial as the platform to share knowledge and experience on methods, approaches and tools in software engineering. The upcoming APSEC 2009 parallel sessions will observe the following initiatives.

WORKSHOP 1:

Evidence-Based Software Engineering—Setting the Agenda for Empirical Studies

By: *Professor David Budgen of Durham University UK and his team.*

The evidence based SE is intended to identify and analyze all research-based findings that are relevant to a particular research question in an unbiased and objective manner. However, there are some constraints imposed by the nature of the discipline and the way that repositories are organized, that need to be recognized when undertaking secondary studies. Secondary studies are based on evidence from the literature review or mapping studies that contradict current practices and opinions in the research and practitioner communities. The workshop proposes to examine the practices of evidence-based studies, review with some example outputs that will be useful to all researchers when starting new research projects.

TUTORIAL 1:

Pragmatic Strategies for Variability Management in Product Lines in Small- to Medium-Size Companies

By: *Assoc. Prof. Stan Jarzabek of National University of Singapore and his team.*

This tutorial will introduce systematic SPL techniques that can help a company sustain business growth. Clarifying and setting up a common architecture for SPL product variants is the first step. Some variant features of products can be nicely mapped into architectural components. Handling such features becomes easy with plug-in components. In most application domains, plug-in component technique is not enough, as the impact of variant features cannot be contained at the component level, but spreads freely across many components, affecting their code at many variation points. Core reusable components become heavily instrumented with variation points, and using multiple techniques to manage variability makes the core components even more complex to work with. You may find this workshop useful in which we will review techniques commonly employed for SPL variability management at architecture and the detailed code level. This part of the workshop will give you a balanced view on how far they can lead you, and complications that typically arise in time. The workshop will blend live demonstrations and hands-on examples of real-life problems based on industrial project experiences, case studies by zooming into technical solutions besides theoretical explanation. Target audience includes software researchers and practitioners with basic understanding of software design and development.

WORKSHOP 2:

T-Way Strategies: Systematic Test Data Reduction Techniques for Hardware and Software Testing

By: *Dr Kamal Z. Zamli and Mohamad I. Younis from Malaysia.*

Rigorous software testing is becoming immensely important in our life environment as we are taking risk to apply many software applications particularly critical systems e.g. life support systems, microwave machines and sophisticated airplane control systems. Many combinations of all possible input parameters and system conditions to be tested need to be verified against the user requirements and specifications. This results into a combinatorial explosion problem. A more recent and systematic solution to this problem is based on t-way testing strategy, where t denotes the interaction strength. Combinatorial explosion problem is NP-complete, it is often unlikely that efficient strategy exists that can always generate optimal test set i.e. each interaction pair is covered by only one test. This workshop will also provide hands-on and a t-way tool demonstration developed by the team. It target audience includes researchers and practitioners interested in combinatorial software testing and software/hardware test engineers.

Note:

All registered APSEC 2009 participants who also register to join the co-located workshop for an additional fee RM150, may join both SEPoW 2009 and any of the two workshops and the tutorial.

TENTATIVE KEYNOTE SPEAKERS



PROFESSOR JOXAN JAFFAR

Joxan Jaffar received his B.Sc.(Hons, 1st class) and M.Sc. from Melbourne University in 1979 and 1981, and his Ph.D. from Monash University in 1985. From 1982 through 1986, he was a Lecturer in Monash, and from 1986 through 1995, he was a Research Staff Member and Project Leader in the IBM. T.J. Watson

Research Center, Yorktown Heights, New York. He joined NUS in 1995, became Head of the Department of Computer Science in 1998, and Dean of the School of Computing from 2001-2007. His interests are in programming languages and applications, with emphasis on the logic and constraint programming paradigms. Amongst his main contributions are the principles of constraint logic programming, and the widely-used CLP(R) system. His current interests center around program analysis and verification, and the design of concurrent programming languages.



PROFESSOR JORGE L. DÍAZ-HERRERA

Dr. Jorge L Díaz-Herrera is Professor of Computing and became founding Dean of the B Thomas Golisano College of Computing and Information Sciences at Rochester Institute of Technology in July, 2002. Prior to this, he was Professor at Southern Polytechnic State University in Atlanta and Yamacraw project coordinator with Georgia Tech. He was also a senior member and a department chair at CMU and Monmouth University in NJ respectively. Dr. Díaz-Herrera completed his undergraduate education in Venezuela, and Master's and Ph.D. from Lancaster University, UK. He recently completed the Graduate Certificate in Management Leadership in Education from Harvard University's Graduate School of Education. Dr. Díaz-Herrera has conducted extensive consulting services with a number of firms and government agencies. He has chaired several national and international conferences, and has been a technical reviewer for several conferences and journals and has more than 80 publications. Today, he is focusing his experience in software engineering in the areas of education, and software product lines for embedded, ubiquitous systems. He currently serves in several boards and advisory committees including the National Science Foundation, the Software Engineering Institute.



NIRBHAYA PATHAK

Nirbhaya Pathak is the Director of Software Engineering responsible for the Research & Development (R&D) operations in Motorola Technology Sdn. Bhd in Penang. Motorola Penang is one of the key center for developing two way radios and accessories. Nirbhaya previously held the position of the Senior Operations Manager in Motorola India Research & Development (R&D) Center, responsible for developing GSM, 3G and LTE technologies for Mobile handsets. He has been involved in Product Design and Development for more than 9 years in Motorola; he has been instrumental for developing first 5 Megapixel camera multimedia rich phones for Motorola. Nirbhaya was responsible for setting-up fully automated Mobile Phones testing lab in Motorola India Hyderabad center. Nirbhaya carries the wide experience of managing multi site development teams including Singapore, China, Denmark and France. Prior to joining Motorola, Nirbhaya was Technical lead in Hughes Software Systems in India and Hughes Network Systems in Maryland USA. During the three years stint, Nirbhaya was responsible for developing GPRS based satellite Mobile handsets. Before Joining Hughes, Nirbhaya was Defence Scientist in Defence Research Development Organization (DRDO) India. During three years tenure in DRDO, Nirbhaya developed Microstrip Antennas for airborne radars. As a defence scientist, Nirbhaya published more than 10 International publications on Microstrip Anetnnas. Nirbhaya holds a Bachelor of Engineering in Electronics and Telecommunications from Vikram University Ujjain, India. Nirbhaya is currently authoring a book on management as well.

PROGRAMME SCHEDULE

APSEC 2009 Workshop Day & SEPoW 2009			
Date : 30 November 2009			
Venue : Eureka Complex, Universiti Sains Malaysia, Penang			
8:30-9:00	Registration		
9:00-9:30	Welcome Speech		
Time/Venue	Auditorium	Room I	Room II
9:30-12:30	SEPoW 2009 (Panel I)	SEPoW 2009 (Panel II)	Industry-Academia-Research Discussion/Networking
12:30-14:30	Lunch		
14:30-16:30	Workshop I: Evidence-Based Software Engineering D. Budgen <i>et al.</i> <i>Durham University, UK</i>	Tutorial I: Software Product Line in Small-to-Medium Size Companies S. Jarzabek <i>National University of Singapore</i>	Workshop II: T-Way Strategies: Hardware and Software Testing K. Z. Zamli and M. I. Younis <i>Universiti Sains Malaysia</i>
16:30-17:00	Tea Break and Networking		
17:00-18:00	Continue Workshops/Tutorial		
18:00-19:30	Sightseeing: University in the Garden		
19:30-22:30	Welcome Reception		

Conference Day I			
Date : 1 December 2009			
Venue : Grand Ballroom, Bayview Beach Resort, Batu Ferringhi, Penang			
8:30-9:00	Registration		
9:00-9:30	Opening Ceremony Keynote Speech I: Research Challenges for Institutionalizing Software Product Lines Prof. Jorge L. Diaz-Herrera <i>Rochester Institute of Technology in Rochester, New York, USA</i>		
9:30-10:30	Tea Break		
Time/Venue	Room I	Room II	Room III
11:00-12:30	Session 1A: Metrics and Measurement I (P001, P283, P230)	Session 1B: Software Design I (P266, P152, P051)	Session 1C: Verification and Validation I (P082, P058, P037)
12:30-14:30	Lunch		
14:30-16:30	Session 2A: Requirements Engineering I (P043, P174, P194, P137)	Session 2B: Software Architecture (P179, P167, P245, P165)	Session 2C: Software Testing I (P183, P169, P024, P158)
16:30-17:00	Tea Break		
17:00-18:00	Session 3A: Metrics and Measurement II (P092, P226)	Session 3B: Software Design II (P028, P215)	Session 3C: Aspect Oriented Programming (P044, P241)

Conference Day II			
Date : 2 December 2009			
9:00 – 10:00	Keynote Speech II: Symbolic Tracing for Program Reasoning Prof . Joxan Jaffar <i>National University of Singapore</i>		
10:00-10:30	Tea Break		
10:30-12:30	Session 4A: Requirements Engineering II (P123, P90, P68, P243)	Session 4B: Program Analysis (P109, P084, P049, P224)	Session 4C: Software Testing II (P156, P031, P121, P277)
12:30-14:30	Lunch		
14:30-19:00	Excursion: Round Island		
19:30-22:30	Dinner		

Conference Day III			
Date : 3 December 2009			
9:00-10:00	Keynote Speech III: Paradox between Software Development Productivity and Success Rate: Are we striking the right balance? Pathak Nirbhaya <i>Motorola Technology Sdn. Bhd., Penang, Malaysia</i>		
10:00-10:30	Tea Break		
10:30-12:30	Session 5A: Requirements Engineering III (P54, P285, P271, P074)	Session 5B: Software Maintenance (P270, P057, P268, P160)	Session 5C: Software Testing III (P096, P234, P228, P254)
12:30-14:00	Lunch		
14:00-16:00	Session 6A: Project Management (P172, P182, P204, P045)	Session 6B: Software Process (P244, P290, P205, P292)	Session 6C: Verification and Validation II (P138, P029, P136, P035)
16:00-16:30	Closing		
16:30-17:00	Tea Break		

Session 1A: Metrics and Measurement I

P001

Improving the Accuracy of Software Effort Estimation based on Multiple Least Square Regression Models by Estimation Error-based Data Partitioning
Y-S Seo, K-A Yoon, and D-H Bae (Korea)

P283

Hierarchical Quality Assessment Model for Large-scale Object-Oriented System
J. Hwa, S. Lee, and Y. Kwon (Korea)

P230

On the Conversion between the Sizes of Software Products in the Life Cycle
C. Gencel, R. Haldal, and K. Lind (Sweden)

Session 1B: Software Design I

P266

Investigating the Effect of Refactoring on Software Testing Effort
K. Elish and M. Alshayeb (Saudi Arabia)

P152

Extracting High-Level Functional Design from Software Requirements
V. S. Sharma, S. Sarkar, K. Verma, A. Panayappan, and A. Kass (India and USA)

P051

Identifying Fragments to Be Extracted from Long Methods
L. Yang, H. Liu, and Z. Niu (China)

Session 1C: Verification and Validation I

P082

A graph based approach to detecting causes of implied scenarios under the asynchronous and synchronous communication styles
I-G Song, S-U Jeon, and D-H Bae (Korea)

P058

Extracting Environmental Constraints to Make Reactive System Specifications Realizable
S. Hagihara, Y. Kitamura, M. Shimakawa, and N. Yonezaki (Japan)

P037

MonitoringWeb Service Composition with Universal Modal Sequence Diagram
W. Li and Z. Wang (China)

Session 2A: Requirements Engineering I

P043

Critical Barriers for Offshore Software Development Outsourcing Vendors: A Systematic Literature Review
S. U. Khan, M. Niazi, and R. Ahmad (UK and Pakistan)

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Re-defining the Requirements Engineering Process Improvement Model
B. Solemon, S. Sahibuddin, and A. A. Abd Ghani (Malaysia)

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Insights into Domain Knowledge Sharing in Software Development Practice
J. Buchan, C. Ekadharmawan, and S. MacDonell (New Zealand)

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Z. Alshaikh and C. Boughton (Australia)

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An Empirical Study of Software Architects' Concerns
H. B. Christensen, K. R. Schougaard, and K. M. Hansen (Denmark and Iceland)

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Attribute-Based Architecture Patterns for Lightweight Service-Oriented Architectures
M. Aoyama, T. Ikezaki, and N. Nakamichi (Japan)

P245

Tool Support for Component-Based Software Architectures
G. Buchgeher and R. Weinreich (Austria)

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Web Services Composition by I/O Data Structure Correspondences
Q. Wang and O. Shigo (Japan)

Session 2C: Software Testing I

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Search-Based Testing Guidance Using Dominances vs. Control Dependencies
A. S. Ghiduk (Egypt)

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Analysis of the OLSR Protocol by using formal passive testing
C. Andres, S. Maag, A. Cavalli, M. G. Merayo, and M. Nunez (Spain and France)

P024

Variable Strength Interaction Testing with an Ant Colony System Approach
X. Chen, Q. Gu, A. Li, and D. Chen (China)

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Spectral Debugging with Weights and Incremental Ranking
L. Naish, H. J. Lee, and K. Ramamohanarao (Australia)

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P092

Improve Analogy-based Software Effort Estimation Using Principal Components Analysis and Correlation Weighting
J. Wen, S. Li, and L. Tang (China)

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Investigating the Effect of Pair Programming and Software Size on Software Quality and Programmer Productivity
R. Sison (Philippines)

Session 3B: Software Design II

P028

Describing Pattern Languages for Checking Design Models
B. Zamani and G. Butler (Canada)

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An Efficient Context-based User Interface by Exploiting Temporality of Attributes
M. Kumara Swamy and P. Krishna Reddy (India)

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Aspect Oriented Programming Made Easy: An Embedded Pointcut Language
A. Cisternino and S. Vaucouleur (Italy and Denmark)

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Analysis and Composition of Multiple Aspects
Nafees Qamar (France)

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Elicit the Requirements on Software Dependability: A Knowledge-Based Approach
C. Liu, Y. Wang, and Z. Jin (China)

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Modeling Access Control Requirements in Feature Model
L. Sun, and G. Huang (China)

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Performing Projection in Problem Frames Using Scenarios
Z. Jin, X. Chen, and D. Zowghi (China and Australia)

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A Light-Weight Formal Approach for Modeling, Verifying and Integrating Role-Based Access Control Requirements
S. Zafar (Pakistan)

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Contribution-Based Call Stack Abstraction and Its Application in Pointer Analysis of AspectJ Programs
J. Qian and B. Xu (China)

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Program Sifting for Language-based Static Analysis
K. Yu, C. Wang, Y-L. Chen, and M-X. Lin (China)

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Avoiding Some Common Preprocessing Pitfalls with Feature Queries
S. Jarzabek, Y. Xue, H. Zhang, and Y. Lee (Singapore and China)

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Sequence Diagram Slicing
K. Noda, T. Kobayashi, S. Yamamoto, and K. Agusa (Japan)