# Table of Contents

**Volume - 2**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>IWESEP 2013 Workshop: Message from the Chairs</td>
<td>ix</td>
</tr>
<tr>
<td>IWESEP 2013 Workshop: Organizing Committee</td>
<td>x</td>
</tr>
<tr>
<td>IWESEP 2013 Workshop: Program Committee</td>
<td>xi</td>
</tr>
<tr>
<td>QuASoQ 2013 Workshop: Message from the Chairs</td>
<td>xii</td>
</tr>
<tr>
<td>QuASoQ 2013 Workshop: Organizing Committee</td>
<td>xiii</td>
</tr>
<tr>
<td>QuASoQ 2013 Workshop: Program Committee</td>
<td>xiv</td>
</tr>
<tr>
<td>APSEC 2013 Tutorials, Industry Track, and Postgraduate Symposium: Message from the Chairs</td>
<td>xv</td>
</tr>
<tr>
<td>APSEC 2013 Industry Track: Program Committee</td>
<td>xvi</td>
</tr>
<tr>
<td>APSEC 2013 Postgraduate Symposium: Program Committee</td>
<td>xvii</td>
</tr>
<tr>
<td>IWESEP 2013: Keynote Address</td>
<td>xviii</td>
</tr>
</tbody>
</table>
International Workshop on Empirical Software Engineering in Practice 2013 (IWESEP 2013)

IWESEP: OSS Activity

Patch Reviewer Recommendation in OSS Projects ..............................................................1
John Boaz Lee, Akinori Ihara, Akito Monden, and Ken-ichi Matsumoto

A Study of the Characteristics of Developers’ Activities in GitHub .....................................7
Saya Onoue, Hideaki Hata, and Ken-ichi Matsumoto

Classifying Bug Reports to Bugs and Other Requests Using Topic Modeling .......................13
Natthakul Pingclasai, Hideaki Hata, and Ken-ichi Matsumoto

IWESEP: Software Analysis

How Much Do Code Repositories Include Peripheral Modifications? ..................................19
Noa Kusunoki, Keisuke Hotta, Yoshiki Higo, and Shinji Kusumoto

Grouping Objects for Execution Trace Analysis Based on Design Patterns .........................25
Tatsuya Toda, Takashi Kobayashi, Noritoshi Atsumi, and Kiyoshi Agusa

Seamless Code Reuse with Source Code Corpus ................................................................31
Tetsuo Yamamoto, Norihiro Yoshida, and Yoshiki Higo

IWESEP: Project Management & Verification

0-1 Programming Model-Based Method for Planning Code Review Using Bug Fix History ..........37
Hirohisa Aman

Calibrating Productivity Drivers for Software Customisation Projects ..................................43
Md. Mahmudul Hasan and Chris Lokan

Bidirectional Translation between OCL and JML for Round-Trip Engineering .......................49
Hiroaki Shimba, Kentrao Hanada, Kozo Okano, and Shinji Kusumoto

International Workshop on Quantitative Approaches to Software Quality 2013 (QuASoQ 2013)

A Study of the Effect of Data Normalization on Software and Information Quality Assessment ..................................................................................................................55
Morgan Ericsson, Welf Löwe, Tobias Olsson, Daniel Toll, and Anna Wingkvist

Modeling Code Analyzability at Method Level in J2EE Applications ..................................61
Panita Meananeatratra, Ekekachan Rattanaleadnusom, Songsakdi Rongviriyapanish, Titiphan Kitcharoensup, Thanapol Wisuttikul, and Boonchai Charoenouysil
Identification of Inaccurate Effort Estimates in Agile Software Development ..............................................67

Florian Raith, Ingo Richter, Robert Lindermeier, and Gudrun Klinker

History and Lessons Learnt from a Metrics Program at a CMMI Level 3 Company .................................................................73

Matthias Vianden, Horst Lichter, Simona Jeners, and Karl-Joachim Neumann

APSEC 2013 Tutorials

Requirements Engineering Based on REBOK (Requirements Engineering Body Of Knowledge) and Its Practice ............................................................79

Mikio Aoyama, Takako Nakatani, Shinobu Saito, and Yukako Imura

Model-Based Transition from Requirements to High-Level Software Design ................................................81

Hermann Kaindl

SAT and SMT: Their Algorithm Designs and Applications ........................................................................83

Mizuhito Ogawa and To Van Khanh

Software Reuse Based on Business Processes and Requirements .................................................................85

Hermann Kaindl

APSEC 2013 Industry Track

Industry Track: Software Testing and Maintenance

Practitioner-Oriented Visualization in an Interactive Search-Based Software Test Creation Tool .................................................................87

Bogdan Marculescu, Robert Feldt, and Richard Torkar

An Automated Testing Tool for Java Application Using Symbolic Execution Based Test Case Generation ........................................................................93

Supasit Monpratarnchaisri, Shoichiro Fujiwara, Asako Katayama, and Tadahiro Uehara


Norifumi Nomura, Yasuhiro Kikushima, and Mikio Aoyama

Suggesting Extract Class Refactoring Opportunities by Measuring Strength of Method Interactions .................................................................105

Giuseppe Pappalardo and Emiliano Tramontana
Industry Track: Software Engineering Methodologies and Process

Experiences During Extraction of Variability Models for Warehouse Management Systems .................................................................111
  Miao Fang, Georg Leyh, Christoph Elsner, and Joerg Doerr

Software Engineering Education Program for Software Professionals of High Competency at DENSO ..........................................................117
  Keiji Kobata, Takuji Uesugi, Hisayoshi Adachi, and Mikio Aoyama

Large Scale Model-Driven Engineering for a Multi-site Team -- Experience Report ......................................................................................123
  Asha Rajbhoj and Vinay Kulkarni

A Software and Integration Process Model for Offshore Vessels .................................................................129
  David N. Card

A Practical Study of Debugging Using Model Checking ......................................................................................134
  Hideto Ogawa, Makoto Ichii, Fumihiko Kumeno, and Toshiaki Aoki

Industry Track: Cloud, Embedded, and Real-Time Systems

Cloud Service Brokers: An Emerging Trend in Cloud Adoption and Migration .........................................................140
  Bimlesh Wadhwa, Aditi Jaitly, and Bharti Suri

A Case Study: Verification of Specifications of an Embedded System and Generation of Verification Items Using Pairwise Testing ......................................................................................146
  Toshifusa Sekizawa and Tsugu Kotorii

Testing of Timing Properties in Real-Time Systems: Verifying Clock Constraints .................................................................152
  Mehrdad Saadatmand and Mikael Sjödin

APSEC 2013 Postgraduate Symposium

A Hybrid Approach for Control Flow Graph Construction from Binary Code .................................................................159
  Minh Hai Nguyen, Thien Binh Nguyen, Thanh Tho Quan, and Mizuhito Ogawa

Mining GitHub: Why Commit Stops -- Exploring the Relationship between Developer's Commit Pattern and File Version Evolution ......................................................................................165
  Yang Weicheng, Shen Beijun, and Xu Ben

Samiksha Umbra: Contribution and Performance Assessment of Software Maintenance Professionals by Mining Software Repositories ......................................................................................170
  Ayushi Rastogi and Ashish Sureka

WTIP Author Index ..................................................................................................................................................176