

2013 IEEE 37th Annual Computer Software and Applications Conference

(COMPSAC 2013)

**Kyoto, Japan
22 – 26 July 2013**



**IEEE Catalog Number: CFP13061-POD
ISBN: 978-1-4673-6494-2**

2013 IEEE 37th Annual Computer Software and Applications Conference

COMPSAC 2013

Table of Contents

Message from the Program Chairs.....	xvi
Message from the General Chairs.....	xviii
Message from the Standing Committee Chair.....	xx
Program Committee.....	xxii
Reviewers.....	xxvi

Software Testing I

Monitoring Based on IOSTS for Testing Functional and Security Properties: Application to an Automotive Case Study	1
<i>Pramila Mouttappa, Stephane Maag, and Ana Cavalli</i>	
ARIGUMA Code Analyzer: Efficient Variant Detection by Identifying Common Instruction Sequences in Malware Families	11
<i>Yang Zhong, Hirofumi Yamaki, Yukiko Yamaguchi, and Hiroki Takakura</i>	
Verifying Access Control Properties with Design by Contract: Framework and Lessons Learned	21
<i>Carlos E. Rubio-Medrano, Gail-Joon Ahn, and Karsten Sohr</i>	
Mining Test Oracles for Test Inputs Generated from Java Bytecode	27
<i>Weifeng Xu, Tao Ding, Hanlin Wang, and Dianxiang Xu</i>	

Internet Architecture and Applications I

CLINEX: An Inter-node Cross-Layer Cooperation Architecture to Adapt to Dynamically Changing Network Situation	33
<i>Kazuma Yonemura, Kunitake Kaneko, and Fumio Teraoka</i>	
GenRe: A General Replication Scheme over an Abstraction of DHTs	43
<i>Jingtao Li, Jie Zhang, Zhen Cao, and Wengang Pei</i>	
Modeling and Analysis of Multi-version Concurrent Control	53
<i>Chao Luo, Hiroyuki Okamura, and Tadashi Dohi</i>	

Fuzzy c-Means Clustering Based Polarization Assessment in Intelligent Argumentation System for Collaborative Decision Support	59
<i>Ravi Santosh Arvapally, Xiaoqing (Frank) Liu, and Donald C. Wunsch II</i>	

Big Data Analytics and Knowledge Management I

Dynamical Re-striping Data on Storage Servers in Parallel File Systems	65
<i>Jianwei Liao, Xiaoyan Liu, and Yingshen Chen</i>	
Nested Pattern Queries Processing Optimization over Multi-dimensional Event Streams	74
<i>Fuyuan Xiao and Masayoshi Aritsugi</i>	
Parallelizing Probabilistic Streaming Skyline Operator in Cloud Computing Environments	84
<i>Xiaoyong Li, Yijie Wang, Xiaoling Li, Yuan Wang, and Rubing Huang</i>	

Mobile and Pervasive Computing

A Device Specification Method Using Doppler Effect of Acoustic Waves	90
<i>Yasutaka Nishimura and Kiyohito Yoshihara</i>	
Agent Redeployment and Missing Data Regathering in Mobile Wireless Sensor Networks	100
<i>Kazuya Matsuo, Keisuke Goto, Akimitsu Kanzaki, Takahiro Hara, and Shojiro Nishio</i>	
RSSI Based Indoor Localization for Smartphone Using Fixed and Mobile Wireless Node	110
<i>Md. Osman Gani, Casey O'Brien, Sheikh I. Ahamed, and Roger O. Smith</i>	
Assisted Human-in-the-Loop Adaptation of Web Pages for Mobile Devices	118
<i>Chenjie Wei, Heesung Lee, Luke Molnar, Michael Herold, Rajiv Ramnath, and Jay Ramanathan</i>	

Network Middleware, Cloud Architectures, and Computing

A Relationship-Based VM Placement Framework of Cloud Environment	124
<i>Xiaodong Zhang, Ying Zhang, Xing Chen, Kai Liu, Gang Huang, and Jianfeng Zhan</i>	
Cloud Client Prediction Models Using Machine Learning Techniques	134
<i>Samuel A. Ajila and Akindele A. Bankole</i>	
A Mashup-Based Approach for Virtual SDN Management	143
<i>Oscar Mauricio Caicedo Rendon, Felipe Estrada Solano, and Lisandro Zambenedetti Granville</i>	

Posters I

Image Encryption Based on Fuzzy Synchronization of Chaos Systems	153
<i>Chao-Lin Kuo, Lung-Chuan Huang, Shun-Jih Wang, Jui-Sheng Lin, Cheng-Chi Wang, and Jun-Juh Yan</i>	
Inferring Directed Static Networks of Influence from Undirected Temporal Networks	155
<i>Taro Takaguchi, Nobuo Sato, Kazuo Yano, and Naoki Masuda</i>	

Speed Control for Permanent Magnet Synchronous Motor System via Quasi-sliding Mode Control	157
<i>Hsin-Chieh Chen, Yi-You Hou, Meei-Ling Hung, and Zhang-Lin Wan</i>	
Maximum Power Tracking Controller for a Wind-Driven Permanent-Magnet Synchronous Generator: Using an Approach of Chaos Synchronization	159
<i>Jian-Liung Chen, Chia-Hung Lin, Bo-Wun Gu, and Ming-Jyi Jang</i>	
Support Vector Machine-Based Fuzzy Inference Systems for Service Restoration Strategy in Micro-distribution Systems	161
<i>Whei-Min Lin, Chia-Sheng Tu, and Chia-Hung Lin</i>	
Data Hiding Technique by Ternary Hamming Codes	163
<i>Jyun-Jie Wang, Hong-Da Chen, Ting-Ya Yang, Houshou Chen, and Chi-Yuan Lin</i>	
SoR-Based Programmable Network for Future Software-Defined Network	165
<i>Kenichi Takagiwa, Shinichi Ishida, and Hiroaki Nishi</i>	
Autonomous Data Transmission Using Off-Peak Hours for Cellular-Based M2M Communications	167
<i>Takeshi Kitahara, Yasuhiko Hiehata, Hideyuki Koto, Norihiro Fukumoto, Hajime Nakamura, and Shigehiro Ano</i>	
 Software Testing II	
Adaptive Test-Case Prioritization Guided by Output Inspection	169
<i>Dan Hao, Xu Zhao, and Lu Zhang</i>	
Evaluation and Analysis of Spectrum-Based Fault Localization with Modified Similarity Coefficients for Software Debugging	180
<i>Yi-Sian You, Chin-Yu Huang, Kuan-Li Peng, and Chao-Jung Hsu</i>	
Bypassing Code Coverage Approximation Limitations via Effective Input-Based Randomized Test Case Prioritization	190
<i>Bo Jiang and W.K. Chan</i>	
 Internet Architecture and Applications II	
Solving the Distributed Trigger Counting Problem without Any Global Assumption	200
<i>Che-Cheng Chang and Jichiang Tsai</i>	
HACCS: Home Appliance Control Concierge System: Extending Functions on Web Service	208
<i>Tomoki Watanabe, Rika Mochizuki, Toru Kobayashi, and Masao Isshiki</i>	
PROMIS: A Management Platform for Software Supply Networks Based on the Linked Data and OSLC	214
<i>Mikio Aoyama, Kazuo Yabuta, Tsutomu Kamimura, Souichi Inomata, Toshiya Chiba, Takashi Niwa, and Koji Sakata</i>	
Design of Cooperative Load Distribution for Addressing Flash Crowds Using P2P File Sharing Network	220
<i>Hiroki Okamoto, Ryosuke Matsumoto, and Yasuo Okabe</i>	

Big Data Analytics and Knowledge Management II

Recursive Segmentation Procedure Based on the Akaike Information Criterion Test	226
<i>Aki-Hiro Sato</i>	
Further Theoretical Contributions to a Privacy Preserving Distributed OLAP Framework	234
<i>Alfredo Cuzzocrea and Elisa Bertino</i>	
pLSM: A Highly Efficient LSM-Tree Index Supporting Real-Time Big Data Analysis	240
<i>Jin Wang, Yong Zhang, Yang Gao, and Chunxiao Xing</i>	

Reliability Modeling and Model-Based Evaluation

Generalized Logit Regression-Based Software Reliability Modeling with Metrics Data	246
<i>Daisuke Kuwa and Tadashi Dohi</i>	
A Dynamic SQL Injection Vulnerability Test Case Generation Model Based on the Multiple Phases Detection Approach	256
<i>Liu Lei, Xu Jing, Li Minglei, and Yang Jufeng</i>	
A Rigorous and Comprehensive Analysis of Effort for Modeling Aspect State Machines: Results from a Series of Controlled Experiments	262
<i>Shaukat Ali and Tao Yue</i>	
Toward Practical Software Reliability Assessment with Change-Point Based on Hazard Rate Models	268
<i>Shinji Inoue, Shiho Hayashida, and Shigeru Yamada</i>	

Posters II

Interaction Physical-Activity Housekeeper for Silver-Haired Citizen Using Wireless Sensor and Mobile Healthcare iPhone	274
<i>Chia-Hung Lin, Chun-Chao Wang, Jian-Liung Chen, Yi-Pin Kuo, Wei-Ling Chen, and Che-Wei Chang</i>	
Design and Implementation of the Dual-Axis Solar Tracking System	276
<i>Tung-Sheng Zhan, Whei-Min Lin, Ming-Huang Tsai, and Guo-Shiang Wang</i>	
Integrating SVM Classifier and Distribution State Estimation for Detection and Identification of AMI Customer's Meter Data	278
<i>Shi-Jaw Chen and Chia-Hung Lin</i>	
Logical Analysis of Weighted Social Networks—An Extended Abstract	280
<i>Tuan-Fang Fan and Churn-Jung Liao</i>	
The Relationships among Presentation Mode, Product Type, Consumers' Product Knowledge, and Consumers' Purchase Intention in the E-Commerce Environment	282
<i>Yu-Min Wang, Yi-Shun Wang, Ching-Hsuan Yeh, and Min-Quan Xie</i>	
A Framework for Dynamic Context-Awarable User Interfaces of the Second Screen Devices in a Home Network Environment	284
<i>Jaewon Moon, Tae-Beom Lim, Kyung Won Kim, Seung Woo Kum, Myunghyun Yoon, and Kwangsu Cho</i>	

Automatic Redemption of Free Parking in Shopping Malls	286
<i>Chi-Lok Tsang and Yiu-Wing Leung</i>	
A Practical Behavior Analysis of Video Application Users on Smart Phones	288
<i>Norihiro Fukumoto, Shigehiro Ano, and Shigeki Goto</i>	
Junosphere: Towards Professional Networks Education	290
<i>Maria Salama and Ahmed Shawish</i>	

Software Life Cycle, Evolution, and Management

Automated Transformation of Template-Based Web Applications into Single-Page Applications	292
<i>Jaewon Oh, Woo Hyun Ahn, Seungho Jeong, Jinsoo Lim, and Taegong Kim</i>	
Popularity, Interoperability, and Impact of Programming Languages in 100,000 Open Source Projects	303
<i>Tegawendé F. Bissyandé, Ferdian Thung, David Lo, Lingxiao Jiang, and Laurent Réveillère</i>	
Optimization of Object Queries on Collections Using Annotations for the String Valued Attributes	313
<i>Venkata Krishna Suhas Nerella, Sanjay K. Madria, and Thomas Weigert</i>	

Internet Architecture and Applications III

S-MAIDS: A Semantic Model for Automated Tuning, Correlation, and Response Selection in Intrusion Detection Systems	319
<i>Chris Strasburg, Samik Basu, and Johnny S. Wong</i>	
ProViNet—An Open Platform for Programmable Virtual Network Management	329
<i>Wanderson Paim de Jesus, Juliano Araújo Wickboldt, and Lisandro Zambenedetti Granville</i>	
A Portable Method for Improving Available Bandwidth of PC Cluster	339
<i>Takafumi Fukunaga</i>	

Security, Trust, and Privacy

Clustering of Similar Malware Behavior via Structural Host-Sequence Comparison	349
<i>Hong-Tzer Wang, Ching-Hao Mao, Te-En Wei, and Hahn-Ming Lee</i>	
Efficient General Policy Decision by Using Mutable Variable Aware Cache	359
<i>Liangxing Liu, Weili Han, Elisa Bertino, Tao Zhou, and Xinyi Zhang</i>	
A Multiple Security Domain Model of a Drive-by-Wire System	369
<i>Gerry Howser and Bruce McMillin</i>	
EINSPECT: Evolution-Guided Analysis and Detection of Malicious Web Pages	375
<i>Birhanu Eshete, Adolfo Villafiorita, Komminist Weldemariam, and Mohammad Zulkernine</i>	

Semantic Web and Web Services

Ontology-Based Classification of Non-functional Requirements in Software Specifications: A New Corpus and SVM-Based Classifier	381
<i>Abderahman Rashwan, Olga Ormandjieva, and René Witte</i>	
Domain Hyponymy Hierarchy Discovery by Iterative Web Searching and Inferable Semantics Based Concept Selecting	387
<i>Lili Mou, Ge Li, and Zhi Jin</i>	
Semantic-Enabled Clone Detection	393
<i>Iman Keivanloo and Juergen Rilling</i>	
Distributed Coordination of IoT-Based Services by Using a Graph Coloring Algorithm	399
<i>Jang-Ho Choi, Jae-Hyun Cho, Han-Gyu Ko, and In-Young Ko</i>	

Requirements Engineering

The ReqWiki Approach for Collaborative Software Requirements Engineering with Integrated Text Analysis Support	405
<i>Bahar Sateli, Elian Angius, and René Witte</i>	
Finding Optimal Solution for Satisficing Non-functional Requirements via 0-1 Programming	415
<i>Bin Yin, Zhi Jin, Wei Zhang, Haiyan Zhao, and Bo Wei</i>	
Evaluation of Ontology-Based Checking of Software Requirements Specification	425
<i>Dang Viet Dzung and Atsushi Ohnishi</i>	
Deriving Requirements Specification with Time: A Software Environment Ontology Based Approach	431
<i>Xiaohong Chen, Ronghua Ye, Haiying Sun, and Hong Lu</i>	
Software Requirements Elicitation—A Controlled Experiment to Measure the Impact of a Native Natural Language	437
<i>Sajjad Mahmood and Samuel A. Ajila</i>	

Doctoral Symposium

Timing Synchronization of ZigBee Sensor Network for Ecology Observation	443
<i>Atsushi Morikawa, Hiroshi Yamamoto, and Katsuyuki Yamazaki</i>	
Using Autonomous Air Vehicle in DTN Sensor Network for Environmental Observation	447
<i>Phuong Tran Thi Ha, Hiroshi Yamamoto, and Katsuyuki Yamazaki</i>	
Realtime Guidance System in Hospital Using PHS and Android Device	451
<i>Ryoji Aoki, Hiroshi Yamamoto, Kei-ichi Iguchi, and Katsuyuki Yamazaki</i>	
Browser Synchronization System for Supporting Elderly People and IT Shortfalls	455
<i>Naoya Hongo, Hiroshi Yamamoto, and Katsuyuki Yamazaki</i>	
Congestion Detection in Mobile Network towards Complex Event Processing	459
<i>Tatsuya Takahashi, Hiroshi Yamamoto, Norihiro Fukumoto, Shigehiro Ano, and Katsuyuki Yamazaki</i>	

Data Management and User Interface for a Call for Paper Manager	463
<i>Laurent Issertial and Hiroshi Tsuji</i>	
Enhancing Control Model to Ease Off Centralized Control of Flow-Based SDNs	467
<i>M.M. Othman Othman and Koji Okamura</i>	
Multiple Home Agent Placement Considerations Based on Internet Service Provider Perspective in MobileIPv6	471
<i>H.R.O.E. Dayaratna, K. Kaneko, and F. Teraoka</i>	
OpenFlow Network Visualization Software with Flow Control Interface	475
<i>Yasuhiro Watashiba, Seiichiro Hirabara, Susumu Date, Hirotake Abe, Kohei Ichikawa, Yoshiyuki Kido, Shinji Shimojo, and Haruo Takemura</i>	
 Plenary Panel: Software Assurance	
Software Assurance: What Should We Do Next?	478
<i>Mohammad Zulkernine</i>	
 Plenary Panel: Big Data	
Big Data—Opportunities and Challenges Panel Position Paper	479
<i>Elisa Bertino</i>	
Analytics over Big Data: Exploring the Convergence of DataWarehousing, OLAP and Data-Intensive Cloud Infrastructures	481
<i>Alfredo Cuzzocrea</i>	
 Software Testing III	
A Replicated Study on Random Test Case Generation and Manual Unit Testing: How Many Bugs Do Professional Developers Find?	484
<i>Rudolf Ramler, Klaus Wolfmaier, and Theodorich Kopetzky</i>	
Expose: Discovering Potential Binary Code Re-use	492
<i>Beng Heng Ng and Atul Prakash</i>	
Prioritizing Variable-Strength Covering Array	502
<i>Rubing Huang, Jinfu Chen, Tao Zhang, Rongcun Wang, and Yansheng Lu</i>	
 Formal Methods I	
Formal Modelling of PLC Systems by BIP Components	512
<i>Rui Wang, Yong Guan, Liming Luo, Xiaoyu Song, and Jie Zhang</i>	
Interactive Verification of Safety-Critical Software	519
<i>Daniela da Cruz, Pedro Rangel Henriques, and Jorge Sousa Pinto</i>	
Modeling and Optimizing Resource Scheduling for Service Composition Based on Queuing Petri Nets	529
<i>Guisheng Fan, Huiqun Yu, Liqiong Chen, and Dongmei Liu</i>	

Real-Time and Embedded Systems

Cyber/Physical Co-verification for Developing Reliable Cyber-physical Systems	539
<i>Yu Zhang, Fei Xie, Yunwei Dong, Xingshe Zhou, and Chunyan Ma</i>	
Verification and Implementation of the Protocol Standard in Train Control System	549
<i>Yu Jiang, Hehua Zhang, Xiaoyu Song, William N.N. Hung, Ming Gu, and Jianguang Sun</i>	
File-Based Memory Management for Non-volatile Main Memory	559
<i>Shuichi Oikawa and Satoshi Miki</i>	

Software Architecture and Design I

Component-Based Modeling and Code Synthesis for Cyclic Programs	569
<i>Min Zhou, Hai Wan, Chen Su, Liangze Yin, Lianyi Zhang, Fei He, and Ming Gu</i>	
From Sub-patterns to Patterns: An Approach to the Detection of Structural Design Pattern Instances by Subgraph Mining and Merging	579
<i>Dongjin Yu, Yanyan Zhang, Jianlin Ge, and Wei Wu</i>	
DBPowder: A Flexible Object-Relational Mapping Framework Based on a Conceptual Model	589
<i>Tadashi Murakami, Toshiyuki Amagasa, and Hiroyuki Kitagawa</i>	

Fast Abstracts I

Conversation Characteristics during Pair Work in Computer Literacy Education	599
<i>Kimiko Uchida, Yoshihiko Oya, and Takashi Okuda</i>	
Evaluation of Software Architectures Reliability Based on Hypergraph Grammar	601
<i>Xu Li and Linpeng Huang</i>	
Supporting Keyword Selection in Generating Earth Science Metadata	603
<i>Toshiyuki Shimizu, Tomo Sueki, and Masatoshi Yoshikawa</i>	
Describing Component Behavior Using Improved Chemical Abstract Machine	605
<i>Jinfu Chen, Qing Li, Huanhuan Wang, and Rubing Huang</i>	
Development of Model Checker of Dynamic Linear Hybrid Automata	607
<i>Ryo Yanase, Tatsunori Sakai, Makoto Sakai, and Satoshi Yamane</i>	

Software Testing IV

An If-While-If Model-Based Performance Evaluation of Ranking Metrics for Spectra-Based Fault Localization	609
<i>Chunyan Ma, Tian Tan, Yibo Chen, and Yunwei Dong</i>	
Testing versus Static Analysis of Maximum Stack Size	619
<i>Mahdi Eslamimehr and Jens Palsberg</i>	
On the Gain of Measuring Test Case Prioritization	627
<i>Junpeng Lv, Beibei Yin, and Kai-Yuan Cai</i>	
Isolating and Understanding Program Errors Using Probabilistic Dispute Model	633
<i>Rong Chen, Yaqing Liu, Zhichun Jia, and Jian Gao</i>	

Formal Methods II

Towards Formal Verification of a Commercial Wireless Router Firmware	639
<i>Zheng Lu, Christopher Steinmuller, and Supratik Mukhopadhyay</i>	
A Divide and Conquer Approach to Model Checking of Liveness Properties	648
<i>Kazuhiro Ogata and Min Zhang</i>	
Formalising Middleware Systems: A Design Pattern-Based Approach	658
<i>Nelson Souto Rosa</i>	

HCI and Usability

Examining Privacy Concern in Social-Driven Location Sharing: An Empirical Study on Chinese Popular SNSs	668
<i>Jingtao Li, Chao Zhong, Zhen Cao, Wengang Pei, and Xi Zhou</i>	
Implementation Considerations in Enabling Visually Impaired Musicians to Read Sheet Music Using a Tablet	678
<i>Laura Housley, Thomas Lynch, Rajiv Ramnath, Peter F. Rogers, and Jayashree Ramanathan</i>	
Delineato: A Diagramming User Interface Designed Using a “What You Get is What You Need” Approach	684
<i>Pedro Campos, Fernando Miguel Campos, and João Pestana</i>	
Toward Collective Intelligence for Fighting Obesity	690
<i>Ivor D. Addo, Sheikh I. Ahamed, and William C. Chu</i>	

Software Architecture and Design II

A Software Architecture for High-Level Development of Component-Based Distributed Virtual Reality Systems	696
<i>Vasily Y. Kharitonov</i>	
Supporting Integration of COTS Components from a Perspective of Self-Adaptive Software Architecture	706
<i>Shan Tang and Qiang Liu</i>	

Industry Papers I

The New Verification Method of Authenticity for Pottery and Porcelain Products: Application of the Artifact-Metrics Technology	714
<i>Masaki Fujikawa, Fumihiko Oda, Kengo Moriyasu, Shingo Fuchi, and Yoshikazu Takeda</i>	
Promising XMPP Based Applications for Military and Defense Systems	716
<i>Oral Gürel and Mehmet Ulas Çakir</i>	
A Market-in-Market Collaborative Model towards Application Marketplaces	718
<i>Shih-Fang Chang</i>	
Application of the 0-1 Programming Model for Cost-Effective Regression Test	720
<i>Hirohisa Aman, Manami Sasaki, Kei Kureishi, and Hideto Ogasawara</i>	

Fast Abstracts II

Test Strategies Using Operational Profiles Based on Decision Tables	722
<i>Tomohiko Takagi, Zengo Furukawa, and Yoshinobu Machida</i>	
SQAF-DS: A Software Quality Assessment Framework for Dependable Systems	724
<i>Junbeom Yoo and Sanghyun Yoon</i>	
Support System for Software Development Exercise that Utilizes Activity Data Collected in Real Time from the Development Environment	726
<i>Takafumi Tanaka, Kazuki Mori, Hiroaki Hashiura, Atsuo Hazeyama, and Seiichi Komiya</i>	
On Simplifying Mobile Mashup Application Development	728
<i>Guan-Zhong Wu, Chen-Che Huang, Yui-Chey Teng, Jiun-Long Huang, Wei-Chih Ting, Yi-Yu Su, and Pin-Chuan Liu</i>	
A Dynamic Countermeasure Method to Android Malware by User Approval	730
<i>Makoto Kato and Saeko Matsuura</i>	

M2M Networking and Internet of Things

Through the Internet of Things—A Management by Delegation Smart Object Aware System (MbDSAS)	732
<i>Marcelo Antonio Marotta, Felipe José Carbone, José Jair Cardoso de Santanna, and Liane Margarida Rockenbach Tarouco</i>	
A Hexagonal Coverage LED-ID Indoor Positioning Based on TDOA with Extended Kalman Filter	742
<i>Attaphongse Taparugssanagorn, Siwaruk Siwamogsatham, and Carlos Pomalaza-Ráez</i>	
A IoT Application of Safe Building in IPv6 Network Environment	748
<i>Tseng-Yi Chen, Hsin-Wen Wei, Nien-I Hsu, and Wei-Kuan Shih</i>	
A Scalable and High-efficiency Discovery Service Using a New Storage	754
<i>Minbo Li, Zhu Zhu, and Guangyu Chen</i>	

Applications

Stability of a Cyber-physical Smart Grid System Using Cooperating Invariants	760
<i>Ashish Choudhari, Harini Ramaprasad, Tamal Paul, Jonathan W. Kimball, Maciej Zawodniok, Bruce McMillin, and Sriram Chellappan</i>	
QTime: A Queuing-Time Notification System Based on Participatory Sensing Data	770
<i>Yasha Wang, Jiangtao Wang, and Xiaoyu Zhang</i>	
A Perspective on Computer-Based Training, CBT	778
<i>Takafumi Yoshida</i>	
Building a Body of Knowledge on Model Checking for Software Development	784
<i>Kenji Taguchi, Hideaki Nishihara, Toshiaki Aoki, Fumihiko Kumeno, Koji Hayamizu, and Koichi Shinozaki</i>	

Software Architecture and Design III

Industrial Experiences of Organizing a Hackathon to Assess a Device-centric Cloud Ecosystem	790
<i>Mikko Raatikainen, Marko Komssi, Vittorio dal Bianco, Klas Kindstöm, and Janne Järvinen</i>	
Breeze/ADL: Graph Grammar Support for an XML-Based Software Architecture Description Language	800
<i>Chen Li, Linpeng Huang, Luxi Chen, and Chengyuan Yu</i>	
Software Architecture Decomposition Using Clustering Techniques	806
<i>Abdulaziz Alkhalid, Chung-Horng Lung, Duo Liu, and Samuel Ajila</i>	
Analysis of the Key Factors for Software Quality in Crowdsourcing Development: An Empirical Study on TopCoder.com	812
<i>Ke Li, Junchao Xiao, Yongji Wang, and Qing Wang</i>	

Industry Papers II

A Scalable DTN Routing Protocol for an Infra-less Communication System	818
<i>Kazumine Ogura, Hirofumi Ueda, and Norihito Fujita</i>	
A Retrospection on Building a Custom Tool for Automated System Testing	820
<i>Rudolf Ramler and Werner Putschögl</i>	
Fault-Tolerant Wireless LAN Roaming System Using Client Certificates	822
<i>Shunichi Kinoshita, Toshiki Watanabe, Yasuhiro Yamasaki, Hideaki Goto, and Hideaki Sone</i>	
CASAT-HOOMT: Computer Aided Software Analysis Tool Based on High Order Object-Oriented Modeling Technique	824
<i>Fan Zhang, Jinwu Wang, Xiaoqing (Frank) Liu, Buqing Cao, and Mingdong Tang</i>	

Fast Abstracts III

Towards Optimal Disaster Recovery in Backbone Networks	826
<i>Kien Nguyen, Quang Tran Minh, and Shigeki Yamada</i>	
Empirical Effectiveness Evaluation of Spectra-Based Fault Localization on Automated Program Repair	828
<i>Yuhua Qi, Xiaoguang Mao, Yan Lei, Ziyang Dai, Yudong Qi, and Chengsong Wang</i>	
Potential Semantics in Multi-modal Relevance Feedback Information for Image Retrieval	830
<i>Jiyi Li, Qiang Ma, Yasuhito Asano, and Masatoshi Yoshikawa</i>	
UML based Security Function Policy Verification Method for Requirements Specification	832
<i>Atsushi Noro and Saeko Matsuura</i>	
Determining Appropriate IT Systems Design Based on System Models	834
<i>Sayaka Izukura, Kazuo Yanoo, Hiroshi Sakaki, and Masato Kawatsu</i>	
Author Index	836