# 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

*Pramila Mouttappa, Stephane Maag, and Ana Cavalli*

ARIGUMA Code Analyzer: Efficient Variant Detection by Identifying Common Instruction Sequences in Malware Families ........................................................................................................ 11

*Yang Zhong, Hirofumi Yamaki, Yukiko Yamaguchi, and Hiroki Takakura*

Verifying Access Control Properties with Design by Contract: Framework and Lessons Learned .................................................................................................................................................. 21

*Carlos E. Rubio-Medrano, Gail-Joon Ahn, and Karsten Sohr*

Mining Test Oracles for Test Inputs Generated from Java Bytecode .................................................................................. 27

*Weifeng Xu, Tao Ding, Hanlin Wang, and Dianxiang Xu*

## Internet Architecture and Applications I

CLINEX: An Inter-node Cross-Layer Cooperation Architecture to Adapt to Dynamically Changing Network Situation ................................................................................................................................... 33

*Kazuma Yonemura, Kunitake Kaneko, and Fumio Teraoka*

GenRe: A General Replication Scheme over an Abstraction of DHTs .................................................................................. 43

*Jingtao Li, Jie Zhang, Zhen Cao, and Wengang Pei*

Modeling and Analysis of Multi-version Concurrent Control ............................................................................................. 53

*Chao Luo, Hiroyuki Okamura, and Tadashi Dohi*
Fuzzy c-Means Clustering Based Polarization Assessment in Intelligent Argumentation System for Collaborative Decision Support ..............................................................59
   Ravi Santosh Arvapally, Xiaoqing (Frank) Liu, and Donald C. Wunsch II

**Big Data Analytics and Knowledge Management I**

Dynamical Re-striping Data on Storage Servers in Parallel File Systems .........................................................65
   Jianwei Liao, Xiaoyan Liu, and Yingshen Chen

Nested Pattern Queries Processing Optimization over Multi-dimensional Event Streams .................................74
   Fuyuan Xiao and Masayoshi Antsugi

Parallelizing Probabilistic Streaming Skyline Operator in Cloud Computing Environments .......................................84
   Xiaoyong Li, Yijie Wang, Xiaoling Li, Yuan Wang, and Rubing Huang

**Mobile and Pervasive Computing**

A Device Specification Method Using Doppler Effect of Acoustic Waves ........................................................90
   Yasutaka Nishimura and Kiyohito Yoshihara

Agent Redeployment and Missing Data Regathering in Mobile Wireless Sensor Networks ................................100
   Kazuya Matsuo, Keisuke Goto, Akimitsu Kanzaki, Takahiro Hara, and Shojiro Nishio

RSSI Based Indoor Localization for Smartphone Using Fixed and Mobile Wireless Node ....................................110
   Md. Osman Gani, Casey O’Brien, Sheikh I. Ahamed, and Roger O. Smith

Assisted Human-in-the-Loop Adaptation of Web Pages for Mobile Devices ..................................................118
   Chenjie Wei, Heesung Lee, Luke Molnar, Michael Herold, Rajiv Ramnath, and Jay Ramanathan

**Network Middleware, Cloud Architectures, and Computing**

A Relationship-Based VM Placement Framework of Cloud Environment .........................................................124
   Xiaodong Zhang, Ying Zhang, Xing Chen, Kai Liu, Gang Huang, and Jianfeng Zhan

Cloud Client Prediction Models Using Machine Learning Techniques .............................................................134
   Samuel A. Ajila and Akindele A. Bankole

A Mashup-Based Approach for Virtual SDN Management ............................................................................143
   Oscar Mauricio Caicedo Rendon, Felipe Estrada Solano, and Lisandro Zambenedetti Granville

**Posters I**

Image Encryption Based on Fuzzy Synchronization of Chaos Systems .............................................................153
   Chao-Lin Kuo, Lung-Chuan Huang, Shun-Jih Wang, Jui-Sheng Lin, Cheng-Chi Wang, and Jun-Juh Yan

Inferring Directed Static Networks of Influence from Undirected Temporal Networks ....................................155
   Taro Takaguchi, Nobuo Sato, Kazuo Yano, and Naoki Masuda
Speed Control for Permanent Magnet Synchronous Motor System via Quasi-sliding Mode Control .......................................................... 157

  Hsin-Chieh Chen, Yi-You Hou, Meei-Ling Hung, and Zhang-Lin Wan

Maximum Power Tracking Controller for a Wind-Driven Permanent-Magnet Synchronous Generator: Using an Approach of Chaos Synchronization .......................................................... 159

  Jian-Liung Chen, Chia-Hung Lin, Bo-Wun Gu, and Ming-Jyi Jang


  Whei-Min Lin, Chia-Sheng Tu, and Chia-Hung Lin

Data Hiding Technique by Ternary Hamming Codes .......................................................... 163

  Jyun-Jie Wang, Hong-Da Chen, Ting-Ya Yang, Houshou Chen, and Chi-Yuan Lin

SoR-Based Programmable Network for Future Software-Defined Network .......................................................... 165

  Kenichi Takagiwa, Shinichi Ishida, and Hiroaki Nishi

Autonomous Data Transmission Using Off-Peak Hours for Cellular-Based M2M Communications .......................................................... 167

  Takeshi Kitahara, Yasuhiro Hiehata, Hideyuki Koto, Norihiro Fukumoto,
  Hajime Nakamura, and Shigehiro Ano

Software Testing II

Adaptive Test-Case Prioritization Guided by Output Inspection .......................................................... 169

  Dan Hao, Xu Zhao, and Lu Zhang

Evaluation and Analysis of Spectrum-Based Fault Localization with Modified Similarity Coefficients for Software Debugging .......................................................... 180

  Yi-Sian You, Chin-Yu Huang, Kuan-Li Peng, and Chao-Jung Hsu

Bypassing Code Coverage Approximation Limitations via Effective Input-Based Randomized Test Case Prioritization .......................................................... 190

  Bo Jiang and W.K. Chan

Internet Architecture and Applications II

Solving the Distributed Trigger Counting Problem without Any Global Assumption .......................................................... 200

  Che-Cheng Chang and Jichiang Tsai

HACCS: Home Appliance Control Concierge System: Extending Functions on Web Service .......................................................... 208

  Tomoki Watanabe, Rika Mochizuki, Toru Kobayashi, and Masao Isshiki

PROMIS: A Management Platform for Software Supply Networks Based on the Linked Data and OSLC .......................................................... 214

  Mikio Aoyama, Kazuo Yabuta, Tsutomu Kamimura, Souichi Inomata, Toshiya Chiba,
  Takashi Niwa, and Koji Sakata

Design of Cooperative Load Distribution for Addressing Flash Crowds Using P2P File Sharing Network .......................................................... 220

  Hiroki Okamoto, Ryosuke Matsumoto, and Yasuo Okabe
Big Data Analytics and Knowledge Management II

Recursive Segmentation Procedure Based on the Akaike Information Criterion Test .................................................. 226

Aki-Hiro Sato

Further Theoretical Contributions to a Privacy Preserving Distributed OLAP Framework ........................................... 234

Alfredo Cuzzocrea and Elisa Bertino

pLSM: A Highly Efficient LSM-Tree Index Supporting Real-Time Big Data Analysis ................................................... 240

Jin Wang, Yong Zhang, Yang Gao, and Chunxiao Xing

Reliability Modeling and Model-Based Evaluation

Generalized Logit Regression-Based Software Reliability Modeling with Metrics Data .............................................. 246

Daisuke Kuwa and Tadashi Dohi

A Dynamic SQL Injection Vulnerability Test Case Generation Model Based on the Multiple Phases Detection Approach ............................................................................................................................ 256

Liu Lei, Xu Jing, Li Minglei, and Yang Jufeng

A Rigorous and Comprehensive Analysis of Effort for Modeling Aspect State Machines: Results from a Series of Controlled Experiments ........................................................................................................... 262

Shaukat Ali and Tao Yue

Toward Practical Software Reliability Assessment with Change-Point Based on Hazard Rate Models ........................................................................................................................................................................ 268

Shinji Inoue, Shiho Hayashida, and Shigeru Yamada

Posters II

Interaction Physical-Activity Housekeeper for Silver-Haired Citizen Using Wireless Sensor and Mobile Healthcare iPhone ........................................................................................................................................................................ 274

Chia-Hung Lin, Chun-Chao Wang, Jian-Liung Chen, Yi-Pin Kuo, Wei-Ling Chen, and Che-Wei Chang

Design and Implementation of the Dual-Axis Solar Tracking System ........................................................................... 276

Tung-Sheng Zhan, Whei-Min Lin, Ming-Huang Tsai, and Guo-Shiang Wang

Integrating SVM Classifier and Distribution State Estimation for Detection and Identification of AMI Customer’s Meter Data .................................................................................................................................................................................................................. 278

Shi-Jaw Chen and Chia-Hung Lin

Logical Analysis of Weighted Social Networks—An Extended Abstract ........................................................................ 280

Tuan-Fang Fan and Churn-Jung Liau

The Relationships among Presentation Mode, Product Type, Consumers’ Product Knowledge, and Consumers’ Purchase Intention in the E-Commerce Environment .................................................. 282

Yu-Min Wang, Yi-Shun Wang, Ching-Hsuan Yeh, and Min-Quan Xie

A Framework for Dynamic Context-Awareable User Interfaces of the Second Screen Devices in a Home Network Environment ............................................................................................................................ 284

Jaewon Moon, Tae-Beom Lim, Kyung Won Kim, Seung Woo Kum, Myunghyun Yoon, and Kwangsu Cho
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automatic Redemption of Free Parking in Shopping Malls</td>
<td>286</td>
</tr>
<tr>
<td>Chi-Lok Tsang and Yiu-Wing Leung</td>
<td></td>
</tr>
<tr>
<td>A Practical Behavior Analysis of Video Application Users on Smart Phones</td>
<td>288</td>
</tr>
<tr>
<td>Norihiro Fukumoto, Shigehiro Ano, and Shigeki Goto</td>
<td></td>
</tr>
<tr>
<td>Junosphere: Towards Professional Networks Education</td>
<td>290</td>
</tr>
<tr>
<td>Maria Salama and Ahmed Shawish</td>
<td></td>
</tr>
<tr>
<td><strong>Software Life Cycle, Evolution, and Management</strong></td>
<td></td>
</tr>
<tr>
<td>Automated Transformation of Template-Based Web Applications into Single-Page Applications</td>
<td>292</td>
</tr>
<tr>
<td>Jaewon Oh, Woo Hyun Ahn, Seungho Jeong, Jinsoo Lim, and Taegong Kim</td>
<td></td>
</tr>
<tr>
<td>Popularity, Interoperability, and Impact of Programming Languages in 100,000 Open Source Projects</td>
<td>303</td>
</tr>
<tr>
<td>Tegawendé F. Bissyandé, Ferdian Thung, David Lo, Lingxiao Jiang, and Laurent Réveillère</td>
<td></td>
</tr>
<tr>
<td>Optimization of Object Queries on Collections Using Annotations for the String Valued Attributes</td>
<td>313</td>
</tr>
<tr>
<td>Venkata Krishna Suhas Nerella, Sanjay K. Madria, and Thomas Weigert</td>
<td></td>
</tr>
<tr>
<td><strong>Internet Architecture and Applications III</strong></td>
<td></td>
</tr>
<tr>
<td>S-MAIDS: A Semantic Model for Automated Tuning, Correlation, and Response Selection in Intrusion Detection Systems</td>
<td>319</td>
</tr>
<tr>
<td>Chris Strasburg, Samik Basu, and Johnny S. Wong</td>
<td></td>
</tr>
<tr>
<td>ProViNet—An Open Platform for Programmable Virtual Network Management</td>
<td>329</td>
</tr>
<tr>
<td>Wanderson Paim de Jesus, Juliano Araújo Wickboldt, and Lisandro Zambenedetti Granville</td>
<td></td>
</tr>
<tr>
<td>A Portable Method for Improving Available Bandwidth of PC Cluster</td>
<td>339</td>
</tr>
<tr>
<td>Takafumi Fukunaga</td>
<td></td>
</tr>
<tr>
<td><strong>Security, Trust, and Privacy</strong></td>
<td></td>
</tr>
<tr>
<td>Clustering of Similar Malware Behavior via Structural Host-Sequence Comparison</td>
<td>349</td>
</tr>
<tr>
<td>Horng-Tzer Wang, Ching-Hao Mao, Te-En Wei, and Hahn-Ming Lee</td>
<td></td>
</tr>
<tr>
<td>Efficient General Policy Decision by Using Mutable Variable Aware Cache</td>
<td>359</td>
</tr>
<tr>
<td>Liangxing Liu, Weili Han, Elisa Bertino, Tao Zhou, and Xinyi Zhang</td>
<td></td>
</tr>
<tr>
<td>A Multiple Security Domain Model of a Drive-by-Wire System</td>
<td>369</td>
</tr>
<tr>
<td>Gerry Howser and Bruce McMillin</td>
<td></td>
</tr>
<tr>
<td>EINSPECT: Evolution-Guided Analysis and Detection of Malicious Web Pages</td>
<td>375</td>
</tr>
<tr>
<td>Birhanu Eshete, Adolfo Villafiorita, Komminist Weldemariam, and Mohammad Zulkernine</td>
<td></td>
</tr>
</tbody>
</table>
Semantic Web and Web Services
Ontology-Based Classification of Non-functional Requirements in Software Specifications: A New Corpus and SVM-Based Classifier .......................................................... 381
Abderahman Rashwan, Olga Ormandjieva, and René Witte

Domain Hyponymy Hierarchy Discovery by Iterative Web Searching and Inferable Semantics Based Concept Selecting .......................................................... 387
Lili Mou, Ge Li, and Zhi Jin

Semantic-Enabled Clone Detection .......................................................... 393
Iman Keivanloo and Juergen Rilling

Distributed Coordination of IoT-Based Services by Using a Graph Coloring Algorithm .............................................. 399
Jang-Ho Choi, Jae-Hyun Cho, Han-Gyu Ko, and In-Young Ko

Requirements Engineering
The ReqWiki Approach for Collaborative Software Requirements Engineering with Integrated Text Analysis Support .......................................................... 405
Bahar Sateli, Elian Angius, and René Witte

Finding Optimal Solution for Satisficing Non-functional Requirements via 0-1 Programming .......................................................... 415
Bin Yin, Zhi Jin, Wei Zhang, Haiyan Zhao, and Bo Wei

Evaluation of Ontology-Based Checking of Software Requirements Specification .......................................................... 425
Dang Viet Dzung and Atsushi Ohnishi

Deriving Requirements Specification with Time: A Software Environment Ontology Based Approach .......................................................... 431
Xiaohong Chen, Ronghua Ye, Haiying Sun, and Hong Lu

Software Requirements Elicitation—A Controlled Experiment to Measure the Impact of a Native Natural Language .......................................................... 437
Sajjad Mahmood and Samuel A. Ajila

Doctoral Symposium
Timing Synchronization of ZigBee Sensor Network for Ecology Observation .......................................................... 443
Atsushi Morikawa, Hiroshi Yamamoto, and Katsuyuki Yamazaki

Using Autonomous Air Vehicle in DTN Sensor Network for Environmental Observation .......................................................... 447
Phuong Tran Thi Ha, Hiroshi Yamamoto, and Katsuyuki Yamazaki

Realtime Guidance System in Hospital Using PHS and Android Device .......................................................... 451
Ryoji Aoki, Hiroshi Yamamoto, Kei-ichi Iguchi, and Katsuyuki Yamazaki

Browser Synchronization System for Supporting Elderly People and IT Shortfalls .......................................................... 455
Naoya Hongo, Hiroshi Yamamoto, and Katsuyuki Yamazaki

Congestion Detection in Mobile Network towards Complex Event Processing .......................................................... 459
Tatsuya Takahashi, Hiroshi Yamamoto, Nonhiro Fukumoto, Shigehiro Ano, and Katsuyuki Yamazaki
Data Management and User Interface for a Call for Paper Manager .......................................................... 463

Laurent Issertial and Hiroshi Tsuji

Enhancing Control Model to Ease Off Centralized Control of Flow-Based SDNs .................................................. 467

M.M. Othman Othman and Koji Okamura

Multiple Home Agent Placement Considerations Based on Internet Service Provider Perspective in MobileIPv6 ...................................................................................................................... 471

H.R.O.E. Dayaratna, K. Kaneko, and F. Teraoka

OpenFlow Network Visualization Software with Flow Control Interface ........................................................................ 475

Yasuhiro Watashiba, Seiichiro Hirabara, Susumu Date, Hirotake Abe, Kohei Ichikawa,
Yoshiyuki Kido, Shinji Shimojo, and Haruo Takamura

Plenary Panel: Software Assurance

Software Assurance: What Should We Do Next? ........................................................................................................... 478

Mohammad Zulkernine

Plenary Panel: Big Data

Big Data—Opportunities and Challenges Panel Position Paper ......................................................................................... 479

Elisa Bertino

Analytics over Big Data: Exploring the Convergence of DataWarehousing, OLAP and Data-Intensive Cloud Infrastructures ......................................................................................................................... 481

Alfredo Cuzzocrea

Software Testing III


Rudolf Ramler, Klaus Wolfmaier, and Theodorich Kopetzky

Expose: Discovering Potential Binary Code Re-use ........................................................................................................... 492

Beng Heng Ng and Atul Prakash

Prioritizing Variable-Strength Covering Array .................................................................................................................. 502

Rubing Huang, Jinfu Chen, Tao Zhang, Rongcun Wang, and Yansheng Lu

Formal Methods I

Formal Modelling of PLC Systems by BIP Components ................................................................................................. 512

Rui Wang, Yong Guan, Liming Luo, Xiaoyu Song, and Jie Zhang

Interactive Verification of Safety-Critical Software ......................................................................................................... 519

Daniela da Cruz, Pedro Rangel Henriques, and Jorge Sousa Pinto

Modeling and Optimizing Resource Scheduling for Service Composition Based on Queuing Petri Nets ................................................................................................................................. 529

Guisheng Fan, Huiqun Yu, Liqiong Chen, and Dongmei Liu
# Real-Time and Embedded Systems

Cyber/Physical Co-verification for Developing Reliable Cyber-physical Systems ............................................................... 539  
Yu Zhang, Fei Xie, Yunwei Dong, Xingshe Zhou, and Chunyan Ma

Verification and Implementation of the Protocol Standard in Train Control System .......................................................... 549  
Yu Jiang, Hehua Zhang, Xiaoyu Song, William N.N. Hung, Ming Gu, and Jiaguang Sun

File-Based Memory Management for Non-volatile Main Memory ........................................................................ 559  
Shuichi Oikawa and Satoshi Miki

# Software Architecture and Design I

Component-Based Modeling and Code Synthesis for Cyclic Programs ........................................................................ 569  
Min Zhou, Hai Wan, Chen Su, Liangze Yin, Lianyi Zhang, Fei He, and Ming Gu

From Sub-patterns to Patterns: An Approach to the Detection of Structural Design Pattern Instances by Subgraph Mining and Merging ................................................................. 579  
Dongjin Yu, Yanyan Zhang, Jianlin Ge, and Wei Wu

DBPowder: A Flexible Object-Relational Mapping Framework Based on a Conceptual Model .................................................................................................................................................. 589  
Tadashi Murakami, Toshiyuki Amagasa, and Hiroyuki Kitagawa

# Fast Abstracts I

Conversation Characteristics during Pair Work in Computer Literacy Education .............................................................. 599  
Kimiko Uchida, Yoshihiko Oya, and Takashi Okuda

Evaluation of Software Architectures Reliability Based on Hypergraph Grammar ............................................................... 601  
Xu Li and Linpeng Huang

Supporting Keyword Selection in Generating Earth Science Metadata ........................................................................ 603  
Toshiyuki Shimizu, Tomo Sueki, and Masatoshi Yoshikawa

Describing Component Behavior Using Improved Chemical Abstract Machine ................................................................. 605  
Jinfu Chen, Qing Li, Huanhuan Wang, and Rubing Huang

Development of Model Checker of Dynamic Linear Hybrid Automata ........................................................................ 607  
Ryo Yanase, Tatsunori Sakai, Makoto Sakai, and Satoshi Yamane

# Software Testing IV

An If-While-If Model-Based Performance Evaluation of Ranking Metrics for Spectra-Based Fault Localization ........................................................................................................................................ 609  
Chunyan Ma, Tian Tan, Yibo Chen, and Yunwei Dong

Testing versus Static Analysis of Maximum Stack Size ............................................................................................... 619  
Mahdi Eslamimehr and Jens Palsberg

On the Gain of Measuring Test Case Prioritization ........................................................................................................... 627  
Junpeng Lv, Beibei Yin, and Kai-Yuan Cai

Isolating and Understanding Program Errors Using Probabilistic Dispute Model .......................................................... 633  
Rong Chen, Yaqing Liu, Zhichun Jia, and Jian Gao
Formal Methods II
Towards Formal Verification of a Commercial Wireless Router Firmware ..............................................................639
Zheng Lu, Christopher Steinmuller, and Supratik Mukhopadhyay

A Divide and Conquer Approach to Model Checking of Liveness Properties .........................................................648
Kazuhiro Ogata and Min Zhang

Formalising Middleware Systems: A Design Pattern-Based Approach .................................................................658
Nelson Souto Rosa

HCI and Usability
Examining Privacy Concern in Social-Driven Location Sharing: An Empirical Study on Chinese Popular SNSs ..............................................................668
Jingtao Li, Chao Zhong, Zhen Cao, Wengang Pei, and Xi Zhou

Implementation Considerations in Enabling Visually Impaired Musicians to Read Sheet Music Using a Tablet ..........678
Laura Housley, Thomas Lynch, Rajiv Ramnath, Peter F. Rogers, and Jayashree Ramanathan

Delineato: A Diagramming User Interface Designed Using a “What You Get is What You Need” Approach ...............................................................................684
Pedro Campos, Fernando Miguel Campos, and João Pestana

Toward Collective Intelligence for Fighting Obesity .....................................................................................................690
Ivor D. Addo, Sheikh I. Ahamed, and William C. Chu

Software Architecture and Design II
A Software Architecture for High-Level Development of Component-Based Distributed Virtual Reality Systems ................................................................................696
Vasily Y. Kharitonov

Supporting Integration of COTS Components from a Perspective of Self-Adaptive Software Architecture ..........706
Shan Tang and Qiang Liu

Industry Papers I
The New Verification Method of Authenticity for Pottery and Porcelain Products: Application of the Artifact-Metrics Technology ........................................................................714
Masaki Fujikawa, Fumihiko Oda, Kengo Moriyasu, Shingo Fuchi, and Yoshikazu Takeda

Promising XMPP Based Applications for Military and Defense Systems ...........................................................716
Oral Gürel and Mehmet Ulas Çakır

A Market-in-Market Collaborative Model towards Application Marketplaces ..........................................................718
Shih-Fang Chang

Application of the 0-1 Programming Model for Cost-Effective Regression Test ........................................................720
Hirohisa Aman, Manami Sasaki, Kei Kureishi, and Hideto Ogawara
# Fast Abstracts II

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

# M2M Networking and Internet of Things

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

# Applications

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

Industrial Experiences of Organizing a Hackathon to Assess a Device-centric Cloud Ecosystem
Mikko Raatikainen, Marko Komssi, Vittorio dal Bianco, Klas Kindstöm, and Janne Järvinen

Breeze/ADL: Graph Grammar Support for an XML-Based Software Architecture Description Language
Chen Li, Linpeng Huang, Luxi Chen, and Chengyuan Yu

Software Architecture Decomposition Using Clustering Techniques
Abdulaziz Alkhalid, Chung-Horng Lung, Duo Liu, and Samuel Ajila

Analysis of the Key Factors for Software Quality in Crowdsourcing Development: An Empirical Study on TopCoder.com
Ke Li, Junchao Xiao, Yongji Wang, and Qing Wang

Industry Papers II

A Scalable DTN Routing Protocol for an Infra-less Communication System
Kazumine Ogura, Hirofumi Ueda, and Norihito Fujita

A Retrospection on Building a Custom Tool for Automated System Testing
Rudolf Ramler and Werner Putschögl

Fault-Tolerant Wireless LAN Roaming System Using Client Certificates
Shunichi Kinoshita, Toshiki Watanabe, Yasuhiro Yamasaki, Hideaki Goto, and Hideaki Sone

CASAT-HOOMT: Computer Aided Software Analysis Tool Based on High Order Object-Oriented Modeling Technique
Fan Zhang, Jinwu Wang, Xiaoqing (Frank) Liu, Buqing Cao, and Mingdong Tang

Fast Abstracts III

Towards Optimal Disaster Recovery in Backbone Networks
Kien Nguyen, Quang Tran Minh, and Shigeki Yamada

Empirical Effectiveness Evaluation of Spectra-Based Fault Localization on Automated Program Repair
Yuhua Qi, Xiaoguang Mao, Yan Lei, Ziyang Dai, Yudong Qi, and Chengsong Wang

Potential Semantics in Multi-modal Relevance Feedback Information for Image Retrieval
Jiyi Li, Qiang Ma, Yasuhito Asano, and Masatoshi Yoshikawa

UML based Security Function Policy Verification Method for Requirements Specification
Atsushi Noro and Saeko Matsuura

Determining Appropriate IT Systems Design Based on System Models
Sayaka Izukura, Kazuo Yanoo, Hiroshi Sakaki, and Masato Kawatsu

Author Index