

2012 26th IEEE International Conference on Advanced Information Networking and Applications

AINA 2012

Table of Contents

Message from AINA 2012 Steering Committee	
Co-Chairs.....	xvi
Message from AINA 2012 General Co-Chairs.....	xviii
Message from AINA 2012 Program Committee	
Co-Chairs.....	xix
Message from AINA 2012 Workshops Co-Chairs.....	xx
Organizing Committee.....	xxii
Reviewers.....	xxxiii

Keynotes

The Design Principle of the Robust Communication System under the Great Disaster Environment	1
<i>Shoichi Noguchi</i>	
High Performance Database Processing	5
<i>David Taniar</i>	
Data Replication and Synchronization in P2P Collaborative Systems	7
<i>Fatos Xhafa</i>	

Session 1A: Internet Computing and Web Applications

Malicious Software Detection Using Multiple Sequence Alignment and Data Mining	8
<i>Yi Chen, Ajit Narayanan, Shaoning Pang, and Ban Tao</i>	
Elastic Application Container: A Lightweight Approach for Cloud Resource Provisioning	15
<i>Sijin He, Li Guo, Yike Guo, Chao Wu, Moustafa Ghanem, and Rui Han</i>	
ADEC: Assured Deletion and Verifiable Version Control for Cloud Storage	23
<i>Shin Tezuka, Ryuya Uda, and Kenichi Okada</i>	

A Distributed Service Framework for Integrating Robots with Internet Services	31
<i>Sachiko Nakagawa, Naoto Ohyama, Kazuaki Sakaguchi, Hisashi Nakayama, Noboru Igarashi, Ryota Tsunoda, Shogo Shimizu, Masahiko Narita, and Yuka Kato</i>	

Session 1B: Wireless Mesh Networks

A Rate Adaptive Admission Control Protocol for Multimedia Wireless Mesh Networks	38
<i>Sanjay Kumar Dhurandher, Isaac Woungang, Kirti Kumar, Mamta Joshi, and Monika Verma</i>	

Dynamic Link Quality Aware Routing Protocol for Multi-radio Wireless Mesh Networks	44
<i>Byoungheon Shin, Seon Yeong Han, and Dongman Lee</i>	

Energy-Aware Link Scheduling Algorithms to Maximize Life Cycle of Relay Nodes on IEEE 802.16e Mesh Networks	51
<i>Chien-Yu Wu, Hann-Jang Ho, Sing-Ling Lee, and Shu-Jye Chang</i>	

Analysis and Countermeasure for Wormhole Attacks in Wireless Mesh Networks on a Real Testbed	59
<i>Jie Zhou, Jiannong Cao, Jun Zhang, Chisheng Zhang, and Yao Yu</i>	

Session 1C: Dependable and Fault Tolerant Systems

Design and Implementation of Mesh RAID with Multiple Parities in Virtual Large-Scale Disks	67
<i>Minoru Uehara</i>	

Implementing Virtual Machine Replication: A Case Study Using Xen and KVM	73
<i>Darko Petrovic and André Schiper</i>	

A Diversity-Based Approach for Managing Faults in Web Services	81
<i>Hanane Abdeldjelil, Noura Faci, Zakaria Maamar, and Djamel Benslimane</i>	

A Large Scale Robust Disaster Information System Based on Never Die Network	89
<i>Noriki Uchida, Kazuo Takahata, Yoshitaka Shibata, and Norio Shiratori</i>	

Session 2A: Vehicular Networks and Applications

The Proactive Member-Centric Routing Protocol Using the Several Strategy (PMCS) for the Fleet Scenario in the Hybrid VANET	97
<i>Chung-Ming Huang, Tzu-Hua Lin, and Cheng-Hsiu Chang</i>	

Abiding Regional Data Distribution Using Relay and Random Network Coding on VANETs	105
<i>Naruhiko Kusumine and Susumu Ishihara</i>	

Optimal Phase Ordering of Traffic Signals to Reduce Stopped Delay	113
<i>Jason Barnes and Vamsi Paruchuri</i>	

Session 2B: Energy-Efficient Wireless Networks

Energy-Efficient Update Protocols for Mobile User Context	120
<i>Stefan Föll, Klaus Herrmann, and Kurt Rothermel</i>	
TARS: An Energy-Efficient Routing Scheme for Wireless Sensor Networks with Mobile Sinks and Targets	128
<i>Yuan-Po Chi and Hsung-Pin Chang</i>	
PSense: Reducing Energy Consumption in Public Sensing Systems	136
<i>Patrick Baier, Frank Dürr, and Kurt Rothermel</i>	
Reliable Energy Aware Multi-token Based MAC Protocol for WSN	144
<i>Subhasis Dash, Amulya Ratna Swain, and Anuja Ajay</i>	

Session 2C: Intelligent Systems and Applications

On-demand Data Numerosity Reduction for Learning Artifacts	152
<i>Khamisi Kalegele, Hideyuki Takahashi, Johan Sveholm, Kazuto Sasai, Gen Kitagata, and Tetsuo Kinoshita</i>	
Fuzzy-Based Actuators Controlling for Minimizing Power Consumption in Cyber-physical System	160
<i>Sheng-Tzong Cheng and Ju-Hsien Chou</i>	
Combination of Multiple Retrieval Systems Using Rank-Score Function and Cognitive Diversity	167
<i>Hongzhi Liu, Zhonghai Wu, and D. Frank Hsu</i>	

Session 3A: Distributed Database and Data Mining

MIXED-LSH: Reduction of Remote Accesses in Distributed Locality-Sensitive Hashing Based on L1-distance	175
<i>Hisashi Koga, Masayuki Oguri, and Toshinori Watanabe</i>	
Auto Determining Parameters in Class-Association Mining	183
<i>Viet Phan-Luong</i>	
Recommendation of More Interests Based on Collaborative Filtering	191
<i>Qian Wu, Feilong Tang, Li Li, Leonard Barolli, Ilsun You, Yi Luo, and Huakang Li</i>	
An Interactive Region-Based Filter for Moving Objects Datasets: Making Sense of Chaos	199
<i>Jason Thompson, Wenny Rahayu, and Torab Torabi</i>	

Session 3B: Communication Protocols

A Channel Quality Aware Algorithm for IEEE 802.16 Uplink Burst Construction	207
<i>Yuan-Cheng Lai, Yen-Hung Chen, and Ching-Neng Lai</i>	

Utilization-based Congestion Control: Improvement of Friendliness with TCP over Wireless Links	215
<i>Satoshi Utsumi and Salahuddin Muhammad Salim Zabir</i>	
A Bandwidth Negotiation Scheduling for Prioritized Traffic in MMR Networks	221
<i>Yan-Jing Wu, Tsang-Ling Sheu, and I-Chieh Lin</i>	
A New Loss Recovery Algorithm for Increasing the Performance of TCP Over Wireless Mesh Networks	229
<i>Prasanthi S., Sang-Hwa Chung, and Yong-Hyun Jo</i>	

Session 3C: Pervasive/Ubiquitous Computing and Services

Uncertain Low Penetration Rate—A Practical Issue in Mobile Intelligent Transportation Systems	237
<i>Quang Tran Minh, Muhammad Ariff Baharudin, and Eiji Kamioka</i>	
How Does Mobile Context Affect People’s Web Search Behavior?: A Diary Study of Mobile Information Needs and Search Behaviors	245
<i>Daijiro Komaki, Takahiro Hara, and Shojiro Nishio</i>	
On Co-scheduling of Periodic Update and Application Transactions with Fixed Priority Assignment for Real-Time Monitoring	253
<i>Jiantao Wang, Kam-yiu Lam, Song Han, Sang H. Son, and Aloysius K. Mok</i>	
A Wireless LAN Location Estimation System Using Center of Gravity as an Algorithm Selector for Enhancing Location Estimation	261
<i>Quan Jia Cheng, Joseph Kee-Yin Ng, and Kevin Chin Yiu Shum</i>	

Session 4A: Intelligent Computing and Networks

A Quantum Genetic Algorithm for Operon Prediction	269
<i>Li-Yeh Chuang, Yi-Cheng Chiang, and Cheng-Hong Yang</i>	
Layer Partitioned Search Tree for Packet Classification	276
<i>Yeim-Kuan Chang and Chao-Yen Chien</i>	
Chaos Embedded Particle Swarm Optimization for Tag Single Nucleotide Polymorphism Selection	283
<i>Li-Yeh Chuang, Wei-Li Huang, and Cheng-Hong Yang</i>	
Mixed Observability Markov Decision Processes for Overall Network Performance Optimization in Wireless Sensor Networks	289
<i>Daniel L. Kovacs, Wuyungerile Li, Naoki Fukuta, and Takashi Watanabe</i>	

Session 4B: Communication Systems

Evaluation of Genetic Algorithms for Single Ground Station Scheduling Problem	299
<i>Fatos Xhafa, Junzi Sun, Admir Barolli, Makoto Takizawa, and Kazunori Uchida</i>	

Upload Cache in Edge Networks	307
<i>Yuncheng Zhu and Akihiro Nakao</i>	
Temporary Call-Back Telephone Number Service	314
<i>Ming-Feng Chang and Chi-Hua Chen</i>	
An Architecture for Heterogeneous Data Dissemination Using IMS	319
<i>Raymond Peterkin and Dan Ionescu</i>	

Session 4C: Distributed Systems and Networking

Trying to Unify the LL/SC Synchronization Primitive and the Notion of a Timed Register	326
<i>Damien Imbs and Michel Raynal</i>	
Experimental Evaluation of Alkaline Batteries’s Capacity for Low Power Consuming Applications	331
<i>Konstantin Mikhaylov and Jouni Tervonen</i>	
Time-Dependent Execution Pattern	338
<i>Markus Aleksy and Axel Korthaus</i>	
Realizing Global Synchronizations for Locally-Connected Two-Dimensional Rectangle Cellular Arrays	344
<i>Hiroshi Umeo</i>	

Session 5A: Semantics Computing and Networks

A Semantic Framework for the Management of Enriched Provenance Logs	352
<i>Mohamed Amin Sakka, Bruno Defude, and Jorge Tellez</i>	
Goal-Based Policies for Self-Protecting Systems	360
<i>Julian Schütte</i>	
Semantic Uplift of Monitoring Data to Select Policies to Manage Home Area Networks	368
<i>Annie Ibrahim Rana and Brendan Jennings</i>	
Semantics-Aware Storage and Replication of Trust Metadata in Mobile Ad-hoc Networks	376
<i>Vivek Natarajan, Sencun Zhu, Mudhakar Srivatsa, and Jeff Opper</i>	

Session 5B: Ad Hoc Networks and Routing

Evaluation of a MANET Testbed in Outdoor Bridge Environment Using BATMAN Routing Protocol	384
<i>Elis Kulla, Makoto Ikeda, Tetsuya Oda, Leonard Barolli, Fatos Xhafa, and Aleksander Biberaj</i>	
Efficient Route Discovery and Repair in Mobile Ad-hoc Networks	391
<i>Po-Jen Chuang, Po-Hsun Yen, and Ting-Yi Chu</i>	

A Node-Disjoint Multipath Routing Method Based on AODV Protocol for MANETs	399
<i>Chhagan Lal, V. Laxmi, and M.S. Gaur</i>	

Assessing the Expected Performance of the OLSR Routing Protocol for Denser Urban Core Ad Hoc Network Deployments	406
<i>Deepali Arora, Eamon Millman, and Stephen W. Neville</i>	

Session 5C: P2P Networks and Applications

File Management in a Mobile DHT-based P2P Environment	415
<i>Khalid Ashraf, Rachid Anane, and Behzad Bordbar</i>	

Collaborative Admission Control Scheme for Group-Based P2P Contents Sharing Systems	423
<i>Kazuma Kadowaki and Satoshi Fujita</i>	

On Randomness in ISP-friendly P2P Applications	431
<i>S.M. Saif Shams, Paal E. Engelstad, and Amund Kvalbein</i>	

Optimized Range Queries for Large Scale Networks	438
<i>Nicolas Hidalgo, Erika Rosas, Luciana Arantes, Olivier Marin, Pierre Sens, and Xavier Bonnaire</i>	

Session 6A: Wireless Sensor Networks and Applications

A Scalable WSN Based Data Center Monitoring Solution with Probabilistic Event Prediction	446
<i>Sunil Kumar Vuppala, Animikh Ghosh, Ketan A. Patil, and Kumar Padmanabh</i>	

Effect of Population Size for Node Placement in WMNs Considering Giant Component and Number of Covered Users Parameters	454
<i>Tetsuya Oda, Admir Barolli, Evjola Spaho, Fatos Xhafa, Leonard Barolli, Makoto Takizawa, and Kazunori Uchida</i>	

Reliable Wildfire Monitoring with Sparsely Deployed Wireless Sensor Networks	460
<i>Ikjune Yoon, Dong Kun Noh, Dongeun Lee, Rony Teguh, Toshihisa Honma, and Heonshik Shin</i>	

Session 6B: Mobile Networks and Applications

Zero Scanning Time for 802.11 Networks by Using Media Independent Information Server (MIIS)	467
<i>Muhammad Qasim Khan and Steinar Hidle Andresen</i>	

Channel Orthogonalization (CO) and its Combination with THP (CO-THP) for Multiuser MIMO Systems	474
<i>Liang Zhou, Xiaohui Li, Yongqiang Hei, and Weiyi Yin</i>	

MOS-based Handover Protocol for Next Generation Wireless Networks	479
<i>Sheetal Jadhav, Haibo Zhang, and Zhiyi Huang</i>	

Evaluations of Ant Colony Optimization Inspired SCTP Optimal Path Selection Using E-model	487
<i>Muhammad Ariff Baharudin, Quang Tran Minh, and Eiji Kamioka</i>	

Session 6C: Trust and Security

A Differential Game Approach to Mitigating Primary User Emulation Attacks in Cognitive Radio Networks	495
<i>Dong Hao and Kouichi Sakurai</i>	
Personalizing EigenTrust in the Face of Communities and Centrality Attack	503
<i>Nitin Chiluka, Nazareno Andrade, Dimitra Gkorou, and Johan Pouwelse</i>	
Uncertainty in Probabilistic Trust Models	511
<i>Sadegh Dorri Nagoorani and Rasool Jalili</i>	
Trust-Based Security for Community-Based Cognitive Radio Networks	518
<i>Sazia Parvin and Farookh Khadeer Hussain</i>	

Session 7A: Cloud Computing and Systems

Clock Skew Based Client Device Identification in Cloud Environments	526
<i>Ding-Jie Huang, Kai-Ting Yang, Chien-Chun Ni, Wei-Chung Teng, Tien-Ruey Hsiang, and Yuh-Jye Lee</i>	
ScaleStar: Budget Conscious Scheduling Precedence-Constrained Many-task Workflow Applications in Cloud	534
<i>Lingfang Zeng, Bharadwaj Veeravalli, and Xiaorong Li</i>	
Reliable Provisioning of Spot Instances for Compute-intensive Applications	542
<i>William Voorsluys and Rajkumar Buyya</i>	
Lightweight Application-Level Task Migration for Mobile Cloud Computing	550
<i>Ricky K.K. Ma and Cho-Li Wang</i>	

Session 7B: Communication Networks and Routing

Multi-retransmission Route Discovery Schemes for Ad Hoc Wireless Networks with a Realistic Physical Layer	558
<i>Xiangyang Jin, Thomas Kunz, and Ivan Stojmenovic</i>	
On Multicast Routing with Traffic Grooming in Light-Trail Networks	566
<i>Ching-Fang Hsu and Tzu-Huan Tang</i>	
PC-based Router Virtualization with Hardware Support	573
<i>M. Siraj Rathore, Markus Hidell, and Peter Sjödin</i>	
AMIR: Another Multipath Interdomain Routing	581
<i>Donghong Qin, Jaihai Yang, Zhuolin Liu, Hui Wang, Bin Zhang, and Wei Zhang</i>	

Session 7C: QoS and Service Oriented Architecture

Run-time Revenue Maximization for Composite Web Services with Response Time Commitments	589
<i>Miroslav Živkovic, Joost W. Bosman, Hans van den Berg, Rob van der Mei, Hendrik B. Meeuwissen, and Rudesindo Núñez-Queija</i>	
Completable Quorums of Multimedia Objects	597
<i>Tadateru Ohkawara, Ailixier Aikebaier, Tomoya Enokido, and Makoto Takizawa</i>	
DEMOS: A Description Model for Data-as-a-Service	605
<i>Quang Hieu Vu, Tran-Vu Pham, Hong-Linh Truong, Schahram Dustdar, and Rasool Asal</i>	
Applying Particle Swarm Optimization to Quality-of-Service-Driven Web Service Composition	613
<i>Simone A. Ludwig</i>	

Session 8A: Mobile and Ad Hoc Networks

Impact of Multi-flow Traffic in Wireless Mobile Ad-hoc Networks	621
<i>Makoto Ikeda, Elis Kulla, Masahiro Hiyama, Leonard Barolli, and Makoto Takizawa</i>	
Performance Comparison of DSDV and DYMO Protocols for Vehicular Ad Hoc Networks	629
<i>Evjola Spaho, Makoto Ikeda, Leonard Barolli, Fatos Xhafa, Aleksander Biberaj, and Jiro Iwashige</i>	
Shortcut Anycast Tree Routing in MANETs	635
<i>Shyr-Kuen Chen and Pi-Chung Wang</i>	
Proportionally Quasi-fair Scheduling Optimization in Wireless Ad Hoc Networks	641
<i>Dang-Quang Bui and Won-Joo Hwang</i>	

Session 8B: Multimedia and Social Networking

Video Editing Using Motion Inpainting	649
<i>Joseph C. Tsai, Timothy K. Shih, Kanoksak Wattanachote, and Kuan-Ching Li</i>	
Evaluating Quality of Health Information Sources	655
<i>Leila Weitzel, Paulo Quaresma, and José Palazzo M. de Oliveira</i>	
Instruction for Remote MR Cooperative Work with Captured Still Worker's View Video	663
<i>Makoto Kikkawa, Ginga Kamei, and Ken-ichi Okada</i>	
A Tangible Information Explorer Using Vibratory Touch Screen	671
<i>Hiroaki Nishino, Yuki Fukakusa, Akari Hatano, Tsuneo Kagawa, and Kouichi Utsumiya</i>	

Session 8C: Authentication and Secure Systems

Robust Mobile Device Integration of a Fingerprint Biometric Remote Authentication Scheme	678
<i>Toan-Thinh Truong, Minh Tran, and Anh-Duc Duong</i>	
Compositional Logic for Proof of Correctness of Proposed UDT Security Mechanisms	686
<i>Danilo Valeros Bernardo and Doan B. Hoang</i>	
An Efficient FPGA Design of PingPong-128 Stream Cipher for Secure Computing	695
<i>Amlan Jyoti Choudhury, Hyotaek Lim, and Hoon-Jae Lee</i>	
Efficient and Secure Cross-Realm Client-to-Client Password-Authenticated Key Exchange	701
<i>Po-Jen Chuang and Yi-Ping Liao</i>	

Session 9A: Wireless Sensor Networks

Investigation of Packet Loss in Mobile WSNs for AODV Protocol and Different Radio Models	709
<i>Tao Yang, Tetsuya Oda, Leonard Barolli, Jiro Iwashige, Arjan Durrresi, and Fatos Xhafa</i>	
Analysis of Field Intensity Distribution in Inhomogeneous Propagation Environment	716
<i>Junichi Honda and Kazunori Uchida</i>	
An Algorithm for Jammer Localization in Wireless Sensor Networks	724
<i>Tianzhen Cheng, Ping Li, and Sencun Zhu</i>	
Is RSSI a Good Choice for Localization in Wireless Sensor Network?	732
<i>Karel Heurtefeux and Fabrice Valois</i>	

Session 9B: Cryptographic Techniques and Systems

Toward Data Confidentiality via Integrating Hybrid Encryption Schemes and Hadoop Distributed File System	740
<i>Hsiao-Ying Lin, Shiuan-Tzuo Shen, Wen-Guey Tzeng, and Bao-Shuh P. Lin</i>	
Knapsack Cryptosystems and Unreliable Reliance on Density	748
<i>Shang-Ming Jen, Tse-Lin Lai, Chia-Yu Lu, and Jar-Ferr Yang</i>	
Fundamental Incomplete Cryptography Method to Digital Rights Management Based on JPEG Lossy Compression	755
<i>Munetoshi Iwakiri and Ta Minh Thanh</i>	
Incomplete Cryptography Method Using Invariant Huffman Code Length to Digital Rights Management	763
<i>Munetoshi Iwakiri and Ta Minh Thanh</i>	

Session 9C: P2P and Scalable Systems

Inducing Scale-Free Characteristics of Dynamic Unstructured P2P Networks	771
<i>Junichi Shimada, Kei Ohnishi, Hitomi Tamura, and Yuji Oie</i>	
Intrusion-Tolerant Shared Memory through a P2P Overlay Segmentation	779
<i>Davi da Silva Böger, Joni Fraga, Eduardo Alchieri, and Michelle Wangham</i>	
A Scheduling Method for Node Relay-based Webcast Considering Reconnection	787
<i>Yusuke Gotoh, Tomoki Yoshihisa, Hideo Taniguchi, Masanori Kanazawa, Wenny Rahayu, and Yi-Ping Phoebe Chen</i>	
Building Distributed Attribute-Value Trees on DHT-based Networks	795
<i>Hoai Son Nguyen, Yasuo Tan, and Yoichi Shinoda</i>	

Session 10A: Wireless Sensor Networks and Systems

A Radio-disjoint Geographic Multipath Routing in Wireless Sensor Networks	803
<i>Jeongcheol Lee, Hosung Park, Seungmin Oh, Yongbin Yim, and Sang-Ha Kim</i>	
A Low Cost Reliable Data Transmission Protocol over Multipath in Wireless Sensor Networks	810
<i>Haosong Gou and Younghwan Yoo</i>	
A Reliable Communication Strategy for Real-Time Data Dissemination in Wireless Sensor Networks	817
<i>Seungmin Oh, Yongbin Yim, Jeongcheol Lee, Hosung Park, and Sang-Ha Kim</i>	
Three-Dimensional Location-Based IPv6 Addressing for Wireless Sensor Networks in Smart Grid	824
<i>Chih-Yung Cheng, Chi-Cheng Chuang, and Ray-I Chang</i>	

Session 10B: Communication Systems and Networks

Harsh RED: Improving RED for Limited Aggregate Traffic	832
<i>Ilpo Järvinen, Yi Ding, Aki Nyrhinen, and Markku Kojo</i>	
Distributed Reservation-Based MAC Protocol for UWB WiMedia MAC	841
<i>Jiseon Lee, Hyeonmok Ko, and Cheeha Kim</i>	
Delay Guaranteed Media Access Control for Wireless Home Automation Networks	846
<i>Lei Jing, Zixue Cheng, and Yinghui Zhou</i>	

Session 10C: Scalable and Secure Computing

Preemption-aware Admission Control in a Virtualized Grid Federation	854
<i>Mohsen Amini Salehi, Bahman Javadi, and Rajkumar Buyya</i>	
Mining Network Traffic Efficiently to Detect Stepping-Stone Intrusion	862
<i>Yingjie Sheng, Yongzhong Zhang, and Jianhua Yang</i>	

Web Spam Detection Using Link-Based Ant Colony Optimization	868
<i>Apichat Taweessiriwate, Bundit Manaskasemsak, and Arnon Rungsawang</i>	
From Meta-computing to Interoperable Infrastructures: A Review of Meta-schedulers for HPC, Grid and Cloud	874
<i>Stelios Sotiriadis, Nik Bessis, Fatos Xhafa, and Nick Antonopoulos</i>	
Session 11A: Wireless Networks	
Experimental Results of a MANET Testbed in a Mixed Environment Considering Horizontal and Vertical Topologies	884
<i>Masahiro Hiyama, Elis Kulla, Tetsuya Oda, Makoto Ikeda, and Leonard Barolli</i>	
Scheduling and Flow Control for Delay Guarantees in Multi-hop Wireless Networks	890
<i>Ngoc-Thai Pham, Won-Joo Hwang, and Nak Woon Sung</i>	
Stochastic Optimization for Minimum Outage in Cooperative Ad-hoc Network	898
<i>Thong Huynh, Ngoc-Thai Pham, Won-Joo Hwang, and Fabrice Theoleyre</i>	
Implementation and Evaluation of a Real Object-Oriented Communication Method for Ad-hoc Networks	906
<i>Hiroyuki Suzuki and Akio Koyama</i>	
Session 11B: Energy-Efficient and Green Computing	
An Extended Power Consumption Model for Distributed Applications	912
<i>Tomoya Enokido and Makoto Takizawa</i>	
Algorithms for Selecting Energy-Efficient Storage Servers in Storage and Computation Oriented Applications	920
<i>Takuro Inoue, Ailixier Aikebaier, Tomoya Enokido, and Makoto Takizawa</i>	
Greening the Internet Using Multi-frequency Scaling Scheme	928
<i>Wei Meng, Yi Wang, Chengchen Hu, Keqiang He, Jun Li, and Bin Liu</i>	
Session 11C: Dependable Systems and Autonomic Computing	
Combining Decomposition and Reduction for State Space Analysis of a Self-Stabilizing System	936
<i>Nils Müllner, Oliver Theel, and Martin Fränze</i>	
A Study on Coverage Problem of Network Planning in LTE-Advanced Relay Networks	944
<i>Fan-Hsun Tseng, Chi-Yuan Chen, Li-Der Chou, Tin-Yu Wu, and Han-Chieh Chao</i>	
Deterministic High Density Packet-Buffer System for Low Cost Network Systems	951
<i>Hisashi Iwamoto, Yuji Yano, Yasuto Kuroda, Koji Yamamoto, Shingo Ata, and Kazunari Inoue</i>	
Author Index	957