Preface

This three volume set constitutes the proceedings of the 2007 International Conference on Computational Science and its Applications, ICCSA 2007, held in Kuala Lumpur, Malaysia, from August 26–29, 2007. It represents a comprehensive collection of 300 refereed full papers selected from approximately 1,250 submissions to ICCSA 2007.

The continuous support of computational science researchers has helped ICCSA to become a firmly established forum in the area of scientific computing. This year, the collection of fully refereed high-quality original works accepted as long papers for presentation at ICCSA 2007 have been published in this LNCS volume. This outstanding collection complements the volume of short papers, published for the first time by IEEE CS. All of the long papers presented in this collection of volumes share a common theme: computational science.

Over the past ten years, since the first conference on computational science took place, this vibrant and promising area has firmly established itself as a vital part of many scientific investigations in a broad gamut of disciplines. Having deep roots in fundamental disciplines, such as mathematics, physics, and chemistry, the computational science field is finding new applications in such broad and diverse areas as aerospace and automotive industries, bioinformatics and nanotechnology studies, networks and grid computing, computational geometry and biometrics, computer education, and art. Due to the growing complexity and sophistication of many challenges in computational science, the use of sophisticated algorithms and emerging technologies is inevitable. Together, these far reaching scientific areas help to shape this conference in the realms of state-of-the-art computational science research and applications, encompassing the facilitating theoretical foundations and the innovative applications of such results in other areas.

The topics of the short refereed papers presented in this volume span all the traditional as well as the emerging computational science areas, and are structured according to the major conference themes:

- Computational Methods, Algorithms and Applications
- High Performance Technical Computing and Networks
- Advanced and Emerging Applications
- Geometric Modeling, Graphics and Visualization
- Information Systems and Information Technologies

Moreover, selected short papers from 30 workshops and technical sessions on such areas as information security, web learning, software engineering, computational intelligence, digital security, mobile communications, grid computing, modeling, optimization, embedded systems, wireless networks, computational geometry, computer graphics, biometrics, molecular structures, geographical information systems, ubiquitous computing, symbolic computations, molecular
structures, web systems and intelligence, e-printing, and education are included in this publication.

We are very grateful to the International Steering Committee and the International Program Committee for their tremendous support in putting this conference together, the nearly four hundred referees for their diligent work in reviewing the submissions, and all the sponsors, supporting organizations and volunteers of ICCSA for contributing their time, energy and resources to this event.

Finally, we thank all authors for their submissions making the ICCSA conference year after year one of the premium events on the scientific community scene, facilitating the exchange of ideas, fostering new collaborations, and shaping the future of computational science.

August 2007

Osvaldo Gervasi
Marina L. Gavrilova
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Table of Contents – Part II

Workshop on High-Performance Computing and Information Visualization (HPCIV 07)

Parallel Image Understanding on a Multi-DSP System ............... 1
   M. Fikret Ercan

Parallel Solution of High Speed Low Order FDTD on 2D Free Space Wave Propagation ............................................ 13
   Mohammad Khatim Hasan, Mohamed Othman, Zulkifly Abbas,
   Jumat Sulaiman, and Fatimah Ahmad

Visibility Computations – Scanline Algorithms and Techniques ........ 25
   Md Mizanur Rahman

Adaptive Scheduling of Parallel Computations for SPMD Tasks .......... 38
   Mikhail Panshenskov and Alexander Vakhitov

Determining the Visibility of a Planar Set of Line Segments in
$O(n \log \log n)$ Time ............................................ 51
   Frank Dévai and Marina L. Gavrilova

Workshop on Intelligence and Security Informatics
(ISI 07)

An Efficient Identity-Based Ring Signature Scheme and Its Extension ................................................................. 63
   Jianhong Zhang

Changes of Cyber-Terrorism: Autonomous Terrors and Counter-Measures ..................................................... 75
   In Jung Kim, Cheol-Won Lee, and Eul Gyu Im

Keystroke Pressure-Based Typing Biometrics Authentication System Using Support Vector Machines ............................... 85
   Wahyudi Martono, Hasimah Ali, and Momoh Jimoh E. Salami

An Attack Classification Mechanism Based on Multiple Support Vector Machines .................................................. 94
   Jungtaek Seo

An Efficient Iteration Decoding Stopping Criterion for Turbo Codes .... 104
   Byoung-Sup Shim, Hyoungh-Keun Park, Sun-Youb Kim, and Yu-Chan Ra
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient an Implementation Method Research of a Smart Card Atomic</td>
<td>113</td>
</tr>
<tr>
<td>Operation</td>
<td></td>
</tr>
<tr>
<td>Eun A. Jun, Seok Won Jung, Jeom Goo Kim, and Jong In Lim</td>
<td></td>
</tr>
<tr>
<td>Mobile Agent Based Intrusion Detection System Adopting Hidden Markov</td>
<td>122</td>
</tr>
<tr>
<td>Model</td>
<td></td>
</tr>
<tr>
<td>Do-hyeon Lee, Doo-young Kim, and Jae-il Jung</td>
<td></td>
</tr>
<tr>
<td>Location-Aided Secure Routing Scheme in Mobile Ad Hoc Networks</td>
<td>131</td>
</tr>
<tr>
<td>Location-Aided Secure Routing Scheme in Mobile Ad Hoc Networks</td>
<td></td>
</tr>
<tr>
<td>Do-hyeon Lee, Sun Choi, Ji-hyeon Choi, and Jae-il Jung</td>
<td></td>
</tr>
<tr>
<td>A Design of Fair Blind Signatures Protocol Using PVNIOT</td>
<td>140</td>
</tr>
<tr>
<td>A Design of Fair Blind Signatures Protocol Using PVNIOT</td>
<td></td>
</tr>
<tr>
<td>Jeom-goo Kim, Do-hyeon Lee, and Jeog-bae Lee</td>
<td></td>
</tr>
<tr>
<td>An Access Control Using SPKI Certificate in Peer-to-Peer Environment</td>
<td>148</td>
</tr>
<tr>
<td>An Access Control Using SPKI Certificate in Peer-to-Peer Environment</td>
<td></td>
</tr>
<tr>
<td>Jeom Goo Kim and Do-hyeon Lee</td>
<td></td>
</tr>
<tr>
<td>Security and Test Environment for SIP</td>
<td>157</td>
</tr>
<tr>
<td>Security and Test Environment for SIP</td>
<td></td>
</tr>
<tr>
<td>Geuk Lee, Seok Tae Kim, In Kyu Han, Chang Yong Lee, Seon Ho Park, Do</td>
<td></td>
</tr>
<tr>
<td>Won Yi, and Jung Min Oh</td>
<td></td>
</tr>
<tr>
<td>Simulation Based Nodal Analysis for Effects Based Operations</td>
<td>166</td>
</tr>
<tr>
<td>Simulation Based Nodal Analysis for Effects Based Operations</td>
<td></td>
</tr>
<tr>
<td>Gang Taek Lee, Dong Hwi Lee, and Kuinam J. Kim</td>
<td></td>
</tr>
<tr>
<td>A Stable Evidence Collection Procedure of a Volatile Data in Research</td>
<td>177</td>
</tr>
<tr>
<td>A Stable Evidence Collection Procedure of a Volatile Data in Research</td>
<td></td>
</tr>
<tr>
<td>Yong-Ho Kim, Dong Hwi Lee, and Kuinam J. Kim</td>
<td></td>
</tr>
<tr>
<td>Intelligence Report and the Analysis Against the Phishing Attack</td>
<td>185</td>
</tr>
<tr>
<td>Intelligence Report and the Analysis Against the Phishing Attack</td>
<td></td>
</tr>
<tr>
<td>Dong Hwi Lee, Kyong Ho Choi, and Kuinam J. Kim</td>
<td></td>
</tr>
<tr>
<td>Workshop on Mobile Communications (MobiComm 07)</td>
<td></td>
</tr>
<tr>
<td>Energy-Efficient Distance Based Clustering Routing Scheme for</td>
<td>195</td>
</tr>
<tr>
<td>Wireless Sensor Networks</td>
<td></td>
</tr>
<tr>
<td>Energy-Efficient Distance Based Clustering Routing Scheme for</td>
<td></td>
</tr>
<tr>
<td>Young-Ju Han, Seon-Ho Park, Jung-Ho Eom, and Tai-Myoung Chung</td>
<td></td>
</tr>
<tr>
<td>An Automatic Mobile Web Generation Method from PC Web Using DFS and</td>
<td>207</td>
</tr>
<tr>
<td>W-DFS</td>
<td></td>
</tr>
<tr>
<td>An Automatic Mobile Web Generation Method from PC Web Using DFS and</td>
<td></td>
</tr>
<tr>
<td>W-DFS</td>
<td></td>
</tr>
<tr>
<td>Daehyuck Park, Euisun Kang, and YoungHwan Lim</td>
<td></td>
</tr>
<tr>
<td>Cross-Layer Design for Reducing Handoff Latency in Mobile Network</td>
<td>216</td>
</tr>
<tr>
<td>Cross-Layer Design for Reducing Handoff Latency in Mobile Network</td>
<td></td>
</tr>
<tr>
<td>Woo Jin Jung, Hyung Joo Ki, Tae-Jin Lee, Hyunseung Choo, and</td>
<td></td>
</tr>
<tr>
<td>Min Young Chung</td>
<td></td>
</tr>
</tbody>
</table>
Quick Paging IP Scheme Using Residence Pattern of Mobile Node

*Sukyoung Ahn and Youngsong Mun*

An Efficient Macro Mobility Scheme Supporting Reactive Fast Handover Mode in HMIPv6

*Kyunghye Lee and Youngsong Mun*

Access Scheduling on the Control Channels in TDMA Wireless Mesh Networks

*Hongju Cheng, Xiaohua Jia, and Hai Liu*

An Enhanced Bandwidth Reservation Scheme Based on Road Topology Information for QoS Sensitive Multimedia Wireless Cellular Networks

*M. Sanabani, S. Shamala, M. Othman, and Z. Zukarnain*

Energy Efficient LEACH with TCP for Wireless Sensor Networks

*Jungrae Kim, Ki-young Jang, Hyunseung Choo, and Won Kim*

Route Optimization with Additional Destination-Information in Mobile Networks

*Jeonghoon Park, Sangho Lee, Youho Lee, and Hyunseung Choo*

**Workshop on Information Systems and Information Technologies (ISIT 07)**

Requirements Change Management on Feature-Oriented Requirements Tracing

*Sangim Ahn and Kiwon Chong*

A Comparison Between Complexity and Temporal GIS Models for Spatio-temporal Urban Applications

*Majeed Pooyandeh, Saadi Mesgari, Abbas Alimohammadi, and Rouzbeh Shad*

Crawling the Content Hidden Behind Web Forms

*Manuel Álvarez, Juan Raposo, Alberto Pan, Fidel Cacheda, Fernando Bellas, and Víctor Carneiro*

Simple Performance Model for Differentiated Services in Mobile IPv6 Networks

*Misun Kim and Youngsong Mun*

Multi-site Distributed Software Development: Issues, Solutions, and Challenges

*Pornpit Wongthongatham, Elizabeth Chang, and Tharam Dillon*
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Design and Implementation of Transcoder for Displaying Diagram Data of Multimedia Title on Web Browser</td>
<td>360</td>
</tr>
<tr>
<td>DaeHyuck Park, Euisun Kang, and YoungHwan Lim</td>
<td></td>
</tr>
<tr>
<td>A Recommender System Based on Multi-features</td>
<td>370</td>
</tr>
<tr>
<td>Maria Trujillo, Marta Millan, and Edward Ortiz</td>
<td></td>
</tr>
<tr>
<td>Hybrid Intrusion Detection System for Wireless Sensor Networks</td>
<td>383</td>
</tr>
<tr>
<td>Tran Hoang Hai, Faraz Khan, and Eui-Nam Huh</td>
<td></td>
</tr>
<tr>
<td>A Site-Ranking Algorithm for a Small Group of Sites</td>
<td>397</td>
</tr>
<tr>
<td>KiJoo Kim, MunSu Kang, and YoungSik Choi</td>
<td></td>
</tr>
<tr>
<td>Cognitive Model of Schema as Complex System</td>
<td>406</td>
</tr>
<tr>
<td>Kang Soo Tae, An Ryeol Jeong, and Kang Soo You</td>
<td></td>
</tr>
<tr>
<td>Improved Fast Handover Protocol Using HMIPv6 Based on IEEE 802.16e Network</td>
<td>415</td>
</tr>
<tr>
<td>Gyodu Koo, KiSung Yu, Minki Noh, and Youngsong Mun</td>
<td></td>
</tr>
<tr>
<td>Advanced Macro Mobility Handover Supporting Fast Handover in HMIPv6</td>
<td>424</td>
</tr>
<tr>
<td>Kyunghye Lee and Youngsong Mun</td>
<td></td>
</tr>
<tr>
<td>New Fast Algorithm for Constructing Concept Lattice</td>
<td>434</td>
</tr>
<tr>
<td>YaJun Du, Zheng Pei, HaiMing Li, Dan Xiang, and Kai Li</td>
<td></td>
</tr>
<tr>
<td>Measuring the Usability of Software Applications: Metrics for Behavior:ness</td>
<td>448</td>
</tr>
<tr>
<td>Amalina Farhi Ahmad Fadzlah and Aziz Deraman</td>
<td></td>
</tr>
<tr>
<td>An Efficient Information Dissemination for Publish/Subscription System on Grid</td>
<td>455</td>
</tr>
<tr>
<td>Bo-Hyun Seok, Pill-Woo Lee, Eui-Nam Huh, Ki-Moon Choi, and Kang-Soo Tae</td>
<td></td>
</tr>
<tr>
<td>On Dynamic Multicast Trees for Stormless Binding Update in Network Mobility</td>
<td>469</td>
</tr>
<tr>
<td>Moonseong Kim, Sungchang Lee, and Hyunseung Choo</td>
<td></td>
</tr>
<tr>
<td>Authentication Scheme Using Mobile IPv4 in VPN Intranet</td>
<td>479</td>
</tr>
<tr>
<td>Youngsong Mun and Miyoung Kim</td>
<td></td>
</tr>
</tbody>
</table>

**Workshop on Internet Communications Security (WICS 07)**

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation and Attacks Analysis of a Honeypot</td>
<td>489</td>
</tr>
<tr>
<td>Cláudia J. Barenco Abbas, L. Javier García Villalba, and Victoria López López</td>
<td></td>
</tr>
</tbody>
</table>
An Enhanced One-Round Pairing-Based Tripartite Authenticated Key Agreement Protocol ................................................................. 503
  Meng-Hui Lim, Sanggon Lee, Youngho Park, and Hoonjae Lee

Integrating Identity Based Cryptography with Cryptographically Generated Addresses in Mobile IPv6 .................................................. 514
  Zhen Cao, Hui Deng, Yuanchen Ma, and Po Hu

Supporting Mobility in GKM over Ad-Hoc Network Using a Decentralized and Spontaneous Algorithm ........................................ 526
  Juan Hernández-Serrano, Josep Pegueroles, and Miguel Soriano

Using Adaptive Encryption for Ubiquitous Environments .................. 540
  Antonio Izquierdo, Joaquin Torres, Jose M. Sierra, and Mildrey Carbonell

Estimation of TTP Features in Non-repudiation Service ..................... 549
  Mildrey Carbonell, José María Sierra, Jose A. Onieva, Javier Lopez, and Jianying Zhou

Workshop on Wireless Sensor Networks (WSNs 07)

TLKMS: A Dynamic Keys Management Scheme for Large-Scale Wireless Sensor Networks ................................................................. 559
  Huanzhao Wang, Dongwei Luo, Yufei Guo, and Qingping Zhao

Fuzzy Security Parameter Determining Method for the Commutative Cipher Based Filtering in Sensor Networks ............................. 573
  Hae Young Lee and Tae Ho Cho

Design and Implementation of Wireless Sensor Based-Monitoring System for Smart Factory ................................................................. 584
  Seok Cheol Lee, Tae Gun Jeon, Hyun-Suk Hwang, and Chang-Soo Kim

Energy Efficient Route Recovery Methods for Wireless Sensor Networks Using Hybrid Checkpointing .................................................. 593
  Kwang-Mo Jung, Joong-Jin Kook, Kwang-Soon Choi, Seong-Dong Kim, and SangWon Min

Technical Session on Computer Graphics (TSCG 07)

AM-GM Difference Based Adaptive Sampling for Monte Carlo Global Illumination ................................................................. 602
  Qing Xu, Mateu Sbert, Miquel Feixas, and Jianfeng Zhang

Data-Driven Feature Control Models for Creating Virtual Faces .......... 612
  Yu Zhang
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable Neighbourhood Texture Synthesis with Patch Initialisation</td>
<td>627</td>
</tr>
<tr>
<td><em>Minh Tran and Amitava Datta</em></td>
<td></td>
</tr>
<tr>
<td>Multi-Resolution Protein Model</td>
<td>639</td>
</tr>
<tr>
<td><em>Deok-Soo Kim, Bohyung Lee, Chung-In Won, Donguk Kim, Joonghyun Ryu, Youngsong Cho, Chong-Min Kim, Sung-Hoon Lee, and Jonghwa Bhak</em></td>
<td></td>
</tr>
<tr>
<td>Modeling Origami for Computational Construction and Beyond</td>
<td>653</td>
</tr>
<tr>
<td><em>Tetsuo Ida, Hidekazu Takahashi, Mircea Marin, and Fadoua Ghourabi</em></td>
<td></td>
</tr>
<tr>
<td>A Ghost Cell-Based Data Structure for Multiresolution Meshes</td>
<td>666</td>
</tr>
<tr>
<td><em>Rui Rodrigues, José Morgado, Frutuoso Silva, and Abel Gomes</em></td>
<td></td>
</tr>
<tr>
<td>Bézier Curve and Surface Fitting of 3D Point Clouds Through Genetic Algorithms, Functional Networks and Least-Squares Approximation</td>
<td>680</td>
</tr>
<tr>
<td><em>Akemi Gálvez, Andrés Iglesias, Angel Cobo, Jaime Puig-Pey, and Jesús Espinola</em></td>
<td></td>
</tr>
<tr>
<td>Markov-Gibbs Random Field Modeling of 3D Skin Surface Textures for Haptic Applications</td>
<td>694</td>
</tr>
<tr>
<td><em>Nazr-e-Batool, Ahmad Fadzil M. Hani, and Vooi Voon Yap</em></td>
<td></td>
</tr>
<tr>
<td>Elliptic Polygon Based 2D Sketch Interface for 3D Shape Matching</td>
<td>706</td>
</tr>
<tr>
<td><em>Jaeho Lee, Joon Young Park, and Young Choi</em></td>
<td></td>
</tr>
<tr>
<td>View Synthesis of the New Viewpoint Based on Contour Information</td>
<td>716</td>
</tr>
<tr>
<td><em>Hu Zhi-ping, He Yuan-jun, and Ou Zong-ying</em></td>
<td></td>
</tr>
<tr>
<td>DTIWeb: A Web-Based Framework for DTI Data Visualization and</td>
<td>727</td>
</tr>
<tr>
<td>Processing</td>
<td></td>
</tr>
<tr>
<td><em>F. Prados, I. Boada, M. Feixas, A. Prats, G. Blasco, S. Pedraza, and J. Puig</em></td>
<td></td>
</tr>
<tr>
<td>A New Way to Re-using Paths</td>
<td>741</td>
</tr>
<tr>
<td><em>Qing Xu and Mateu Sbert</em></td>
<td></td>
</tr>
</tbody>
</table>

**Workshop on Wireless and Ad-Hoc Networking (WAD 07)**

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Routing Scheme of Mobile Sink in Sensor Networks</td>
<td>751</td>
</tr>
<tr>
<td><em>Jongchan Lee, Miyoung Hwang, Sangjoon Park, HaeSuk Jang, and Byunggi Kim</em></td>
<td></td>
</tr>
<tr>
<td>Explicit Routing Designation (ERD) Method the Cache Information in Nested Mobile Networks</td>
<td>764</td>
</tr>
<tr>
<td><em>Jiyoung Song, Sangjoon Park, Jongchan Lee, Hyunjoo Moon, and Byunggi Kim</em></td>
<td></td>
</tr>
</tbody>
</table>
Performance Analysis of TCP Downstream Between Heterogeneous Terminals in an Infrastructure Network .......................................................... 778
  Ji-Hong Kim, Yong-Hyun Kim, Youn-Sik Hong, and Ki-Young Lee

An Administration Structure for the OLSR Protocol ............................. 790
  Vínciús Pacheco and Ricardo Puttini

Obstacle Mobility Model Based on Activity Area in Ad Hoc Networks .......................................................... 804
  Hamideh Babaei, Mahmood Fathi, and Morteza Romoozi

A XML Script-Based Testing Tool for Embedded Softwares .................. 818
  Jongbae Moon, Donggyu Kwak, Yongyun Cho, Sangjoon Park, and Jongchan Lee

A Context-Adaptive Workflow Language for Ubiquitous Computing Environments .......................................................... 829
  Yongyun Cho, Kyoungho Shin, Jongsun Choi, and Jaeyoung Choi

A Semantic Interoperable Context Infrastructure Using Web Services ... 839
  Eunhoe Kim and Jaeyoung Choi

An Effective Detection Method for Clustering Similar XML DTDs Using Tag Sequences .......................................................... 849
  Hyun-Joo Moon, Jae-Woo Yoo, and Jongmyung Choi

An Automatic Correction Tool for Relational Algebra Queries ............ 861
  Josep Soler, Imma Boada, Ferran Prados, Jordi Poch, and Ramon Fabregat

Workshop on e-Printing CAE Technology (E-PCAET 07)

Study on the Nonlinearity of the Nonstationary Impulse Signal Using Reassigned Time-Frequency Analysis .......................................................... 873
  Tae-Gun Jeong

Development of Systematic Design Automation System for Hemming
Die Manufacturing Process .......................................................... 883
  Seoung Soo Lee, Ho Yeon Ryu, Keun Sang Park, and Hyo Sang Jung

Numerical Simulation of the Lateral Frequency Response of a Thin Cantilever Beam-Like Structure by Using the Finite Element Model .... 895
  Dojoong Kim and Tae-Gun Jeong

On the Ink Transfer Process in Gravure Printing ................................ 907
  Suhong Ahn and Yang Na
A Study on the Optimal Taper Tension Control in a Roll to Roll Machine ................................................................. 919
Changwoo Lee, Jangwon Lee, and Keehyun Shin

On-Line Measurement of Wrinkle Using Machine Vision ............. 931
Hoang Minh To, Dong Keun Shin, and Sung Lim Ko

An Effective Visualization and Analysis Method for Edge Measurement .............................................................................. 941
Andrey Toropov

The Analysis of Film Flow Around Rotating Roller Partially Immersed Ink....................................................................................... 951
Seung-Hwan Yu, Soojin Kang, Kwan-Soo Lee, and Sukkee Um

An Automated Design System of Press Die Components Using 3-D CAD Library ................................................................. 961
C.W. Kim, C.H. Park, and S.S. Lee

Workshop on Advanced Security Services (ASS 07)

Security Analysis of TORA Routing Protocol ................................. 975
Vee Liem Chee and Wei Chuen Yau

A Privacy Protecting UMTS AKA Protocol Providing Perfect Forward Secrecy ................................................................. 987
Daeyoung Kim, Younggang Cui, Sangjin Kim, and Heekuck Oh

Secure Mobile Content Delivery Using Dynamic Group Key Agreement with Batch Verification ............................................. 996
Seokhyang Cho, Kiwon Song, Dongsob Cho, and Dongho Won

An Enhanced ID-Based Deniable Authentication Protocol on Pairings ......................................................................................... 1008
Meng-Hui Lim, Sanggon Lee, Youngho Park, and Hoonjae Lee

Design of Hybrid Network Discovery Module for Detecting Client Applications and ActiveX Controls ................................. 1018
Kyounghee Ko, Pilyong Kang, and Wontae Sim

An Efficient Re-keying Scheme for Cluster Based Wireless Sensor Networks .................................................................................. 1028
Faraz Idris Khan, Hassan Jameel, S.M.K. Raazi, Adil Mehmood Khan, and Eui Nam Huh

Secure Protocol for Fast Authentication in EAP-Based Wireless Networks ..................................................................................... 1038
Rafa Marin, Santiago Zapata, and Antonio F. Gomez
Using Return Routability for Authentication of Fast Handovers in Mobile IPv6 .................................................... 1052
Youngsong Mun, Kyunghye Lee, Seonggeun Ryu, and Teail Shin

Enhancement for Security of Peer-to-Peer by Expanding CGA Mechanism ...................................................... 1062
Seonggeun Ryu and Youngsong Mun

A Simplified Anonymous Dynamic Source Routing Protocol for Ad-Hoc Networks .................................................... 1072
Chunum Kong, Hyunseung Choo, and Won Kim

Young-Geun Choi, Jeonil Kang, and DaeHun Nyang

A Trust Management Model for PACS-Grid ........................ 1097
Hyun-Sook Cho, Bong-Hwan Lee, and Kyu-Won Lee

N-dimensional Grid-Based Key Predistribution in Wireless Sensor Networks .................................................... 1107
Jong-Myoung Kim, Young-Ju Han, Seon-Ho Park, and Tai-Myoung Chung

Author Index .................................................. 1121