## Table of Contents

**Message from the Conference Chairs**........................................................................................................xiv
**Message from the Program Chairs**.............................................................................................................xv
**Conference Organizers**....................................................................................................................................xvi
**Program Committee**........................................................................................................................................xvii

### Keynotes

- **Software Architectures for Task-Oriented Computing**.................................................................................3
  *David Garlan*

- **Issues and Models of Security Oriented Systems**.......................................................................................4
  *C. V. Ramamoorthy*

### Communication Systems and Networks Track

- **A Rate Control Protocol for High Speed Streaming Video**..........................................................................7
  *Xiaogang Yang, Baosong Shan, and Yaping Yang*

- **Collaboration between Security Devices toward Improving Network Defense**........................................13
  *Meharouech Sourour, Bouhoula Adel, and Abbes Tarek*

- **Trust Mechanism in Distributed Access Control Model of P2P Networks**.................................................19
  *Lei Wang, Yanqin Zhu, Lanfang Jin, and Xizhao Luo*
Computer Architecture and VLSI Track

Convergence Analysis of Jacobi Iterative Method Using Logarithmic Number System ............................................27
Peng Huang, Daniel H.-Y. Teng, Khan Wahid, and Seok-Bum Ko

Effective RTL Method to Develop On-Line Self-Test Routine
for the Processors Using the Wavelet Transform .................................................................33
Amin Asghari, Seied Ahmad Motamedi, and Sepehr Attarchi

Computer Science, Information Science, and Information

Comparison between New Quantum Approaches for Finding the Minimum
or the Maximum of an Unsorted Set of Integers.................................................................41
Mir Shahriar Emami, Mohammad Reza Fattahi, and Hossein Keshmiri

Evaluation on Quantum Computation and Classic Parallel Approaches
for Finding Estimation of the Length of Shortest Path in a Weighted Graph ............................47
Mir Shahriar Emami, Mohammad Reza Fattahi, and Hossein Keshmiri

A Real-Time Interactive Visualization System for DNS Amplification
Attack Challenges ..................................................................................................................55
Huiming Yu, Xiangfeng Dai, Tom Baxley, and Jinsheng Xu

Radix Plus Length Based Insert Sort .....................................................................................61
Yongcheng Zhang

Control Systems, Intelligent System Track

An Integer Linear Programming Approach for Dedicated Machine Constraint .................................69
Huy Nguyen Anh Pham, Arthur Shr, and Peter P. Chen

Efficient Complex Event Processing over RFID Data Stream ..............................................75
Xingyi Jin, Xiaodong Lee, Ning Kong, and Baoping Yan

Tabu Search Solution for Fuzzy Linear Programming ................................................................82
M. Hadi Mashinchi, M. Reza Mashinchi, and M. Mashinchi

Temperature Control for the Thermal Cycling of Polymerase Chain Reaction ............................88
Jinhe Wang and Nan Zhang

Data Mining, Data Warehousing, and Database Track

A Parallel Algorithm for Closed Cube Computation ................................................................95
Jinguo You, Jianqing Xi, Pingjian Zhang, and Hu Chen

An Efficient Structural Index for Graph-Structured Data .....................................................100
Yingjie Fan, Chenghong Zhang, Shuyun Wang, Xiulan Hao, and Yunfa Hu
(τ, λ)-Uniqueness: Anonymity Management for Data Publication .............................................................. 107
   Qiong Wei, Yansheng Lu, and Qiang Lou

Autonomic Computing in SQL Server .............................................................................................................. 113
   Abdul Mateen, Basit Raza, Tauqeer Hussain, and M. M. Awais

Cross-Channel Customer Mapping .................................................................................................................. 119
   Jayanta Basak and Sunil Goyal

DBPowder-mdl: Mapping Description Language between Applications and Databases ........................................ 127
   Tadashi Murakami

Dimensionality Reduction in Hyperbolic Data Spaces: Bounding Reconstructed-Information Loss ...................... 133
   Duc A. Tran and Khanh Vu

Entropy Based Clustering of Data Streams with Mixed Numeric and Categorical Values ..................................... 140
   Shuyun Wang, Yingjie Fan, Chenghong Zhang, HeXiang Xu, Xiulan Hao, and Yunfa Hu

Information Analysis for Enabling Optimal Utilization of Service Delivery Channels in Indian Banks................. 146
   Hemalatha Diwakar and Alka Vaidya

Privacy-Preserving Data Publishing Based on De-clustering ............................................................................. 152
   Qiong Wei, Yansheng Lu, and Qiang Lou

Schema Versioning in Multi-temporal XML Databases ...................................................................................... 158
   Zouhaier Brahnia and Rafik Bouaziz

Subspace Clustering of High Dimensional Data Streams .................................................................................... 165
   Shuyun Wang, Yingjie Fan, Chenghong Zhang, HeXiang Xu, Xiulan Hao, and Yunfa Hu

Synchronizer—A Web-Based Application to Enhance Capabilities of NEESCentral Web Portal ......................... 171
   Thuy T. Le, Syeda Naema Hashmi, and Kurt McMullin

**Image Processing and Pattern Recognition Track**

A Fast and Accurate Iris Recognition Method Using the Complex Inversion Map and 2DPCA ............................. 179
   Sepehr Attarchi, Karim Faez, and Amin Asghari

A Novel Image Text Extraction Method Based on K-Means Clustering ............................................................. 185
   Yan Song, Anan Liu, Lin Pang, Shouxun Lin, Yongdong Zhang, and Sheng Tang

Attention Model Based SIFT Keypoints Filtration for Image Retrieval ............................................................ 191
   Ke Gao, Shouxun Lin, Yongdong Zhang, Sheng Tang, and Huamin Ren

Content-Based Classifying Traditional Chinese Calligraphic Images ............................................................... 197
   Zhong Gao, Guanming Lu, Daquan Gu, and Chun He
Region-Based Image Fusion Approach Using Iterative Algorithm .......................................................... 202
Yingjie Zhang and Liling Ge

Three Dimensional Face Recognition Using SVM Classifier ................................................................. 208
Mir Hashem Mousavi, Karim Faez, and Amin Asghari

Image, Acoustic, Speech and Signal Processing Track

A Novel Detection Method of Filled Pause in Mandarin Spontaneous Speech ........................................... 217
Yan-Xiong Li, Qian-Hua He, and Tao Li

Research of English-Chinese Alignment at Word Granularity on Parallel Corpora ..................................... 223
Yang Xu, Hou-feng Wang, and Xue-qiang Lü

Information Management Systems and Management Track

Objective Types for the Valuation of Secure Business Processes ............................................................ 231
Thomas Neubauer and Johannes Heurix

On-Line Network Reachability Analysis Using Forward Information Base Emulation ............................. 237
Young Dae Kim, Chan Kyou Hwang, and Jae Hyoung Yoo

Secure E-cheques for Joint Accounts with Collective Signing Using Forward-Secure Multi-signature Scheme .............................................................. 241
N. R. Sunitha, B. B. Amberker, and Prashant Koulgi

Verification of Unstructured Workflows via Propositional Logic .......................................................... 247
Qianhui Althea Liang and J. Leon Zhao

Intelligent Agent Technology, Agent Based Systems Track

Agent Based Architecture for Secure Access from Multiple Hospitals .................................................. 255
Sun K. Yoo, Jun Choe, and Do Yoon Kim

P2P Distributed Intrusion Detections by Using Mobile Agents ......................................................... 259
Dayong Ye, Quan Bai, Minjie Zhang, and Zhen Ye

Internet Technology and Applications, E-commerce Track

An Adaptive Index of XML for Frequent Branching Path Queries ......................................................... 269
Yingjie Fan, Chenghong Zhang, Shuyun Wang, Xiulan Hao, and Yunfa Hu

Email Categorization Using (2+1)-Tier Classification Algorithms ......................................................... 276
M. Rafiqul Islam, Wanlei Zhou, and Morshed U. Chowdhury

Identity-Based Conference Key Distribution Scheme Using Sealed Lock .............................................. 282
Yongguan Cai and Xiuying Li
SIMPA: A SIP-Based Mobile Payment Architecture
Ge Zhang, Feng Cheng, Christoph Meinel

Knowledge Discovery, Artificial Intelligence, Neural Networks Track

A Document Clustering Method Based on One-Dimensional SOM
Yan Yu, Pilian He, Yushan Bai, and Zhenlei Yang

A Genetic Algorithm for Finding Minimal Multi-homogeneous Bézout Number
Dongshu Yan, Jintao Zhang, Bo Yu, Changtong Luo, and Shaoliang Zhang

An Effective Data Classification Algorithm Based on the Decision Table Grid
Hongjie Liu, Boqin Feng, and Jianjie Wei

An Extensive Empirical Study of Feature Selection for Text Categorization
Li-Qing Qiu, Ru-Yi Zhao, Gang Zhou, and Sheng-Wei Yi

An Improved Condensing Algorithm
Xiulan Hao, Chenghong Zhang, Hexiang Xu, Xiaopeng Tao, Shuyun Wang, and Yunfa Hu

Efficient Projection for Compressed Sensing
Vo Dinh Minh Nhat, Duc Vo, Subhash Challa, and SungYoung Lee

Ensemble Methods for Ontology Learning—An Empirical Experiment to Evaluate Combinations of Concept Acquisition Techniques
Ricardo Gacitua and Pete Sawyer

Low Dimensional Reproduction Strategy for Real-Coded Evolutionary Algorithms
Changtong Luo, Shaoliang Zhang, and Bo Yu

Machine Learning Approach for Ontology Mapping Using Multiple Concept Similarity Measures
Ryutaro Ichise

Optimizing Text Summarization Based on Fuzzy Logic
Farshad Kyoomarsi, Hamid Khosravi, Esfandiar Eslami, Pooya Khosravyan Dehkordy, and Asghar Tajoddin

Middleware Architectures and Techniques Track

A Solution Framework on Fundamentals in Model Transformation
Yucong Duan, Kyo-Chul Kang, and Yuqing Gu

EESM for IEEE 802.16e: WiMaX
Shahid Mumtaz, Atilio Gamerio, and Jonathan Rodriguez

Lessons Learned from Implementing WS-Coordination and WS-AtomicTransaction
Ivan Silva Neto and Francisco Reverbel
Observations on Liner Prediction Based Blind Source Extraction Algorithms .................................................................373
   Min Gan, Hongfa Wang, Guoying Yue, Nan Xie, and Haibo Zhang

Research and Application of Information Granulation Based on Extension Method ..........................................................377
   Minghui Wang, Yongquan Yu, and Bi Zeng

Sensor Data Collection of the Single Location Surveillance Point System ................................................................................382
   T. Räty, J. Oikarinen, M. Nieminen, and M. Lindholm

Mobile/Wireless Computing Track

A Novel Enterprise Mobile E-mail System Using the SyncML Protocol ..................................................................................391
   Jing Xie, Dan Yu, and Shilong Ma

Design and Implementation of Wireless Sensor Network for Ubiquitous Glass Houses ..........................................................397
   Meong-hun Lee, Ki-bok Eom, Hyun-joong Kang, Chang-sun Shin, and Hyun Yoe

Distributed Detection in Wireless Sensor Networks ..................................................................................................................401
   Sheng-Tzong Cheng, Szu-Yun Li, and Chia-Mei Chen

Parallel and Distributed Computing and Systems Track

An Empirical Analysis of Intel Thread Checker for Detecting Races in OpenMP Programs ..........................................................409
   Young-Joo Kim, Daeyoung Kim, and Yong-Kee Jun

Execution Time Analysis of a Parallel Steiner Tree Algorithm on Server-Client Model of Computation ........................................415
   Rashid Bin Muhammad

Exponential Integral Methods for Burgers Equation ..................................................................................................................421
   Jing-jun Zhao, Shu-xin Bao, and Yu Li

Finite-State Modeling and Testing of Image Based Authentication System ............................................................................427
   Nitin, Durg Singh Chauhan, Vivek Kumar Sehgal, Ankit Mahanot, Pallavi Singh, Sohit Ahuja, Utkarsh Shrivastava, Manisha Rana, Vineet Punjabi, Shivam Vinay, and Nakul Sharma

Gauging the OpenSourceMark Benchmark in Measuring CPU Performance ........................................................................433
   Fadi N. Sibai

Parallel Sorting on the Biswapped Network ...............................................................................................................................439
   Wenhong Wei, Wenjun Xiao, and Zhen Zhang

Predicate Detection Modality and Semantics in Three Partially Synchronous Models ................................................................444
   Chunbo Chu and Monica Brockmeyer
Programming Languages, Compilers, and Operating Systems Track

Control Network Programming Illustrated: Solving Problems with Inherent Graph-Like Representation.................................................................453
Kostadin Kratchanov, Emilia Golemanova, and Tzanko Golemanov

Software Metrics and Project Management Track

An Effort-Based Approach to Measure Completeness of an Entity-Relationship Model.................................................................463
Tauqeer Hussain and Mian M. Awais

A Value-Added Predictive Defect Type Distribution Model Based on Project Characteristics ........................................................................469
Youngki Hong, Jongmoon Baik, In-Young Ko, and Ho-Jin Choi

Monitoring Software Projects with Earned Value Analysis and Use Case Point .................................................................475
Jinhua Li, Zhibing Ma, and Huanzhen Dong

Software Engineering and Information Engineering Track

A Mechanical Approach for Deriving Algorithmic Programs........................................................................................................483
Haihe Shi, Jinyun Xue, and Dawei Du

Engineering Education—A Great Challenge to Software Engineering........................................................................488
Jaroslav Král and Michal Žemlička

Generating Algorithms plus Loop Invariants by Formal Derivation.................................................................................................496
Haihe Shi, Dawei Du, and Jinyun Xue

Manual Specific Testing and Quality Evaluation for Embedded Software ........................................................................502
Seon-Jae Jang, Hae-Geun Kim, and Youn-Ky Chung

Mobile GUI Testing Tool Based on Image Flow ..................................................................................................................508
Oh-Hyun Kwon and Sun-Myung Hwang

On the Precision and Accuracy of Impact Analysis Techniques ..........................................................................................513
Lile Hattori, Dalton Guerrero, Jorge Figueiredo, João Brunet, and Jemerson Damásio

Quantitative Process Improvement in XP Using Six Sigma Tools................................................................................519
Sajid Ibrahim Hashmi and Jongmoon Baik

Static Analysis of the Disassembly against Malicious Code Obfuscated with Conditional Jumps .........................................................525
Chao Dai, Jianmin Pang, Rongcai Zhao, and Xiaojun Ma

Two-Dimensional Framework for Analyzing Variabilities in Software Product Lines .............................................................531
Mikyeong Moon, Heung Seok Chae, Jinseok Park, and Keunhyuk Yeom
Software Reuse, Design Patterns Track

Reconstructing Control Flow in Modulo Scheduled Loops ................................................................. 539
Miao Wang, Rongcai Zhao, Jianmin Pang, and Guoming Cai

Recovering Variable-Argument Functions from Binary Executables .................................................. 545
Wen Fu, Rongcai Zhao, Jianmin Pang, and Jingbo Zhang

Software Testing and Tools Track

A New Operational Framework for Benchmarking the SAN Products .................................................. 553
Prabu D., Devi Prasad B., Lakshminarayan Prasad K., and Kishor Arumilli

A Strategic Test Process Improvement Approach Using an Ontological Description for MND-TMM ........................................................................................................ 561
Hoyeon Ryu, Dong-Kuk Ryu, and Jongmoon Baik

Enhancing Data Flow Testing of Classes through Design by Contract .................................................. 567
Yogesh Singh and Anju Saha

Security Analysis and Implementation of JUIT-Image Based Authentication System Using Kerberos Protocol .................................................................................................................. 575
Nitin, Durg Singh Chauhan, Vivek Kumar Sehgal, Ankit Mahanot, Pullavi Singh, Sohit Ahuja, Utkarsh Shrivastava, Manisha Rana, Vineet Punjabi, Shivam Vinay, and Nakul Sharma

The Utilization of User Sessions in Testing .......................................................................................... 581
Izzat Alsmadi

UML, OO Modeling, and Simulation Track

Queuing Network Performance Model for Evaluation of CMP-Based VoIP SPS ............................... 589
Jiuzhen Jin, Jianmin Pang, Zheng Shan, and Rongcai Zhao

Visual and Multimedia Track

Relevance-Feedback Image Retrieval Based on Multiple-Instance Learning ........................................ 597
Duc A. Tran, S. R. Pamidimukkala, and Phuong Nguyen

Web Engineering and Applications Track

An Efficient Approach for QoS-Aware Service Selection Based on a Tree-Based Algorithm ............ 605
Minhyuk Oh, Jongmoon Baik, Sungwon Kang, and Ho-jin Choi

Coordination Behavioral Structure: A Web Services Coordination Model in Dynamic Environment .................................................................................................................. 611
Yongwang Zhao, Dianfu Ma, Min Liu, and Chunyang Hu
Designing Fault Tolerant Web Services Using BPEL ................................................................................................. 618
Jim Lau, Lau Cheuk Lung, Joni da S. Fraga, and Giuliana Santos Veronese

Verification for Time Consistency of Web Service Flow ................................................................................................. 624
Ruijuan Liu, Changjun Hu, ChongChong Zhao, and Zhong Gao

On the Dynamic Ant Colony Algorithm Optimization Based on Multi-pheromones ................................................. 630
Ya-mei Xia, Jun-liang Chen, and Xiang-wu Meng

**Workshop on E-activity Track**

A New Negotiation Mechanism for Agent-Based Lecture Allocation Systems ................................................................. 639
Yoshihito Saito, Takayuki Fujimoto, and Tokuro Matsuo

RDF-Based Approach to Data Transform Composition ..................................................................................................... 645
Jungmin Shin, Joachim Hammer, and Herman Lam

Building a Service-Oriented Ontology for Wireless Sensor Networks ........................................................................ 649
Jeong-Hee Kim, Hoon Kwon, Do-Hyeun Kim, Ho-Young Kwak, and Sang-Joon Lee

Research Process Support with Organizational Flow in e-Science .................................................................................. 655
Dukyun Nam, June H. Lee, Soonwook Hwang, Young-Kyoon Suh, and Byungsang Kim

A Design on Collaborative-Cooperative Document Edit System Based on Cognitive Analyses ........................................ 661
Takayuki Fujimoto, Muhammad Dzulqarnain Muhammad Nasir, and Tokuro Matsuo

A New Approach on Interactive SOA Security Model Based on Automata ..................................................................... 667
Hamidreza Amouzegar, Shahrir Mohammadi, Mohammad Jafar Taroikh, and Anahita Naghilouye Hidaji

Mobile Mapping Service Using Scalable Vector Graphics on the Human Geographic .................................................. 672
Jin Suk Kang, Yonghee You, Mee Young Sung, Taikyeong T. Jeong, and Jongan Park

Analysis of E-bank Innovation in China Using a Hypercube Model .............................................................................. 678
HaiBo Zhu and Ying Zou

Developing Accessible Applications with User-Centered Architecture ........................................................................ 684
Sabina Jeschke, Helmut Vieritz, and Olivier Pfeiffer

Web Page Dependent Vision Based Segmentation for Web Sites ................................................................................... 690
Pyungkwan Ko, Sanggil Kang, and Harshit Kumar

Robust Routing .................................................................................................................................................................. 695
Himanshu Agrawal, Andrew Jennings, Mark Gregory, and Daud Channa

**Author Index** .................................................................................................................................................................. 701