PDCAT 2005
PROGRAM AT A GLANCE

Preface...............................................01
Organization................................. 02
Conference Schedule.................03
Program Schedule.........................05
Technical Sessions...............07
Preface

Welcome to the Sixth International Conference on Parallel and Distributed Computing, Applications and Technologies (PDCAT 2005). PDCAT 2005 is an international conference sponsored by IEICE Information and Systems Society, IEEE Beijing Section, Dalian University of Technology, and Japan Advanced Institute of Science and Technology. It provides a major forum for scientists, engineers, and practitioners throughout the world to present the latest research, results, ideas, development, techniques, and applications in all areas of parallel and distributed computing. PDCAT 2005 focuses on architectures, software systems, algorithms, applications, and technologies in the field of parallel and distributed computing and networking.

This proceeding collects qualified papers selected from 550 submissions from 19 countries/regions worldwide. The overall quality of the submissions is high, making the selection process difficult. Through a careful review process, where each submitted manuscript was reviewed as full paper by at least two Program Committee members or their external referees, the Program Committee accepted about 25% of the submissions.

We are very pleased to have three outstanding researchers to deliver keynote addresses at the conference: “Future Technological Challenges for High Performance Computers” by Dr. Tadashi Watanabe from NEC, Japan; “An Agile Programming Model for Grid End Users” by Prof. Zhiwei Xu from Chinese Academy of Sciences, China; and “Scalable and Practical Nonblocking Switching Networks” by Si Qing Zheng from University of Texas at Dallas, USA. We are grateful to our keynote speakers for their valuable contributions to the conference. The full papers/extended abstracts of their addresses are also contained in this proceedings.

The four-day technical program including a half-day tutorial program consisting of five parallel tutorial sessions contains 50 technical sessions and three keynote sessions. We would like to express our thanks to all authors who submitted their papers for consideration and to all Program Committee members and external referees for their help in the paper review process. We would like to extend our special thanks to the Program Vice Chairs, Robert Li, Chinese University of Hong Kong, China; Teruo Matsuzawa, Japan Advanced Institute of Science and Technology, Japan; and Fuliang Yin, Dalian University of Technology, China, for their excellent work on convening paper reviews of their own tracks. We would also like to express our thanks to Yingwei Jin, Haibin Kan, Keqiu Li, Gui Xie, Chao Peng, and Haibo Zhang for their help in local arrangement, proceedings publication, conference Web page maintenance, and registration. Our appreciation also goes to our tutorial presenters and session chairs who have made visible contributions to the conference.

Last but not least, we wish to thank all attendees for participating in the conference. We hope that you will find your participation in this conference rewarding and your stay in Dalian enjoyable.

Hong Shen, General Chair
Koji Nakano, Program Chair
December 2005
# Conference Organization

## Honorary Chair
Gengdong Cheng, President, Dalian University of Technology, China

## General Chair
Hong Shen, Japan Advanced Institute of Science and Technology, Japan

## Program Chair
Koji Nagano, Hiroshima University, Japan

## Program Vice-Chairs
Robert Li, Chinese University of Hong Kong, China  
Teruo Matsuzawa, Japan Advanced Institute of Science and Technology, Japan  
Fuliang Yin, Dalian University of Technology, China

## Program Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation</th>
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<tr>
<td>Hideharu Amano</td>
<td>Keio University, Japan</td>
</tr>
<tr>
<td>Hamid R. Arabnia</td>
<td>University of Georgia, USA</td>
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<tr>
<td>Tetsuo Asano</td>
<td>JAIST, Japan</td>
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<tr>
<td>Richard P. Brent</td>
<td>Oxford University, UK</td>
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<td>Guoliang Chen</td>
<td>U. of Sci. &amp; Tech. of China, China</td>
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<td>Tom Chen</td>
<td>South Methodist University, USA</td>
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<td>Zongxian Chi</td>
<td>Dalian Univ. of Tech., China</td>
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<td>Youqiang Duan</td>
<td>Petroleum University, China</td>
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<td>Brian d’Auriol</td>
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<td>David John Evans</td>
<td>Loughborough Univ., UK</td>
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<td>Pingzhi Fan</td>
<td>Southwest Jiao tong Univ., China</td>
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<td>Afonso Ferreira</td>
<td>MASCOTTE -INRIA, France</td>
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<td>Teofilo F. Gonzalez</td>
<td>UC Santa Barbara, USA</td>
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<td>Yijie Han</td>
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<td>Sang Yong Han</td>
<td>Chung-Ang University, Korea</td>
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<td>Kei Hiraki</td>
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<td>Shi-Jinn Horng</td>
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<td>Oscar Ibarra</td>
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<td>Zhiwei Xu</td>
<td>Chinese Academy of Sciences, China</td>
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<td>Jingling Xue</td>
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<td>Lu Yan</td>
<td>Turku Centre for Computer Sci., Finland</td>
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<td>St. Francis Xavier U., Canada</td>
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<td>Albert Y. Zomaya</td>
<td>Univ. of Sydney, Australia</td>
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## Tutorial & Workshop Chair
Susumu Horiguchi, Tohoku Univ., Japan

## Local Arrangements Chair
Yingwei Jin, Dalian Univ. of Tech., China

## Industry Liaison Chair
Simon See, Nanyang Tech. Univ., Singapore

## Finance Chair
Haibin Kan, Fudan University, China

## Publication Chair
Keqiu Li, JAIST

## Internet Chair
Gui Xie, JAIST

## Information Service
Chao Peng, JAIST

Haibo Zhang, JAIST
# Conference Schedule

## Monday, December 5, 2005

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Venue</th>
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<tbody>
<tr>
<td>08:00-12:30</td>
<td>Registration</td>
<td>Lobby (1st fl.)</td>
</tr>
<tr>
<td>08:30-10:00</td>
<td>Tutorials</td>
<td>Rooms 1-5</td>
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<tr>
<td>10:00-10:30</td>
<td>Morning Coffee/Tea Break</td>
<td>Foyer (2nd fl.)</td>
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<tr>
<td>10:30-12:30</td>
<td>Tutorials (cont.)</td>
<td>Rooms 1-5</td>
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<tr>
<td>12:30-13:30</td>
<td>Lunch</td>
<td>Restaurant (2nd fl)</td>
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<tr>
<td>13:30-15:30</td>
<td>Technical Sessions 1B</td>
<td>Rooms 1-5</td>
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<tr>
<td>15:30-16:00</td>
<td>Afternoon Coffee/Tea Break</td>
<td>Foyer (2nd fl.)</td>
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<tr>
<td>16:00-18:00</td>
<td>Technical Sessions 1C</td>
<td>Rooms 1-5</td>
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<tr>
<td>19:00-21:00</td>
<td>Welcome Reception</td>
<td>Banquet Hall (2nd fl.)</td>
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## Tuesday, December 6, 2005

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<td>08:30-09:00</td>
<td>Opening Ceremony</td>
<td>Room 1</td>
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<tr>
<td>09:00-10:00</td>
<td>Keynote Address by Tadashi Watanabe, Future Technological Challenges for High Performance Computers.</td>
<td>Room 1</td>
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<tr>
<td>10:00-10:30</td>
<td>Morning Coffee/Tea Break</td>
<td>Foyer (2nd fl.)</td>
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<tr>
<td>10:30-12:30</td>
<td>Technical Sessions 2A</td>
<td>Rooms 1-5</td>
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<td>12:30-13:30</td>
<td>Lunch</td>
<td>Restaurant (2nd fl)</td>
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<tr>
<td>13:30-15:30</td>
<td>Technical Sessions 2B</td>
<td>Rooms 1-5</td>
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<td>15:30-16:00</td>
<td>Afternoon Coffee/Tea Break</td>
<td>Foyer (2nd fl.)</td>
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<tr>
<td>16:00-18:00</td>
<td>Technical Sessions 2C</td>
<td>Rooms 1-5</td>
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## Wednesday, December 7, 2005

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<tr>
<td>08:00-09:00</td>
<td>Registration</td>
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<tr>
<td>09:00-10:00</td>
<td>Keynote Address by Zheiwei Xu, An Agile Programming Model for Grid End Users.</td>
<td>Room 1</td>
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<tr>
<td>10:00-10:30</td>
<td>Morning Coffee/Tea Break</td>
<td>Foyer (2nd fl.)</td>
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<tr>
<td>10:30-12:30</td>
<td>Technical Sessions 3A</td>
<td>Rooms 1-5</td>
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<td>12:30-13:30</td>
<td>Lunch</td>
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<td>13:30-17:30</td>
<td>Guided Tour</td>
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<tr>
<td>19:00-21:00</td>
<td>Conference Banquet</td>
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### Thursday, December 8, 2005

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<td>09:00-10:00</td>
<td>Keynote Address by Si Qing Zheng. Scalable and Practical Nonblocking Switching Network.</td>
<td>Room 1</td>
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<td>10:00-10:30</td>
<td>Morning Coffee/Tea Break</td>
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<td>10:30-12:30</td>
<td>Technical Sessions 4A</td>
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<td>12:30-13:30</td>
<td>Lunch</td>
<td>Restaurant (2nd fl)</td>
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<td>13:30-15:30</td>
<td>Technical Sessions 4B</td>
<td>Rooms 1-5</td>
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<td>15:30-16:00</td>
<td>Afternoon Coffee/Tea Break</td>
<td>Foyer (2nd fl.)</td>
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<td>16:00-18:00</td>
<td>Technical Sessions 4C</td>
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# TECHNICAL SESSIONS

**Monday, December 5, 2005**

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<tr>
<th>Room 1</th>
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<td>Tutorials: 08:00-10:00; 10:30-12:30</td>
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<tr>
<td>Tutorial by Shi-Jinn Horng</td>
<td>Tutorial by Yamin Li</td>
<td>Tutorial by Frode Eika Sandnes</td>
<td>Tutorial by Xavier Defago</td>
<td>Tutorial by Jacir Bordim</td>
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</table>

### Session B: 13:30-15:30

- **1B1** Interconnection Networks
- **1B2** Parallelization Techniques
- **1B3** Wireless Networks and Mobile Computing-I
- **1B4** Grid Computing Systems-I
- **1B5** Security, Reliability and Fault-Tolerance-I

### Session C: 16:00-18:00

- **1C1** Network Architectures
- **1C2** Communication and Multimedia Systems
- **1C3** Wireless Networks and Mobile Computing-II
- **1C4** Optical Networks
- **1C5** Security, Reliability and Fault-Tolerance-II

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**Tuesday, December 6, 2005**

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<td>08:30-09:00 Opening Ceremony</td>
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### Session A: 10:30-12:30

- **2A1** Security, Reliability and Fault-Tolerance-I
- **2A2** Wireless Networks and Mobile Computing-III
- **2A3** Ubiquitous Computing Systems
- **2A4** Internet Computing and Web Technology-I
- **2A5** Simulation and Performance Evaluation-I

### Session B: 13:30-15:30

- **2B1** Security, Reliability and Fault-Tolerance-IV
- **2B2** Grid Computing Systems-II
- **2B3** Software Technology and Programming Languages
- **2B4** Agent Technology-I
- **2B5** Simulation and Performance Evaluation-II

### Session C: 16:00-18:00

- **2C1** Security, Reliability and Fault-Tolerance-V
- **2C2** Grid Computing Systems-III
- **2C3** Internet Computing and Web Technology-II
- **2C4** Agent Technology-II
- **2C5** Tools and Environments for Software Development
### Wednesday, December 7, 2005

<table>
<thead>
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<th>Time</th>
<th>Session</th>
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<td>Keynote Address by Si Qing Zheng, Scalable and Practical Nonblocking Switching Network.</td>
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<td>4A1 Network Routing-II</td>
<td>4A2 Parallel and Distributed Algorithms-II</td>
<td>4A3 Applications-I</td>
<td>4A4 P2P Systems</td>
<td>4A5 Image Processing and Computer Graphics-II</td>
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<td>Session C: 16:00-18:00</td>
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Monday, December 5, 8:30-12:30

**Tutorials:**

A-1: (Room 1) The solutions to the three main menaces of information security--A machine learning approach to spam mails, spywares and web intrusion detections.

  Shi-Jinn Horng, National Taiwan University of Science and Technology, Taiwan, China

A-2: (Room 2) Fault-Tolerant Routing in Dual-Cube.

  Yamin Li, Hosei University, Tokyo, Japan

A-3: (Room 3) Interaction design and usability for ubiquitous, mobile and everyday devices.

  Frode Eika Sandnes, Oslo University College, Norway

A-4: (Room 4) Failure Detection in Distributed Systems: Retrospective and Recent advances.

  Xavier Defago, Japan Advanced Institute of Science and Technology, Japan

A-5: (Room 5) Mobile Ad Hoc Networks and Smart Antenna Technology: New Challenges at the MAC Layer

  Jacir Bordim, Brasilia University, Brazil

Monday, December 5, 13:30-15:30

**Session 1B1: Interconnection Networks** (Room 1)

**Chair:** Wen-Jing Hsu

Rearrangeability of the Tandem Cascade of Banyan-Type Networks............................X. Tan, S.-Y. R. Li, and Y. Shen

ReCord: A Distributed Hash Table with Recursive Structure .............................................J. Zeng and W.-J. Hsu

The Topological Properties and Network Embedding of RP(k).................................................F. Liu and L. Xu

Theory on Switch Preservation under 2-Stage Interconnection.............................................S.-Y. R. Li and X. Tan

A Reconfigurable Optical Interconnect System for DSAG.................................................L. Li, Z. Cao, M.-Y. Chen, and J.-P. Fan

**Session 1B2: Parallelization Techniques** (Room 2)

**Chair:** Takashi Yokota

Loop Parallelisation for the Jikes RVM .................................................................J. Zhao, I. Rogers, C. Kirkham, and I. Watson

Eliminating Inter-thread Interference in Register File for SMT Processors ......................H. Yang, G. Cui, and X. Yang

Two-Path Limited Speculation Method for Static/Dynamic Optimization

in Multithreaded Systems .................................................................T. Yokota, M. Saito, F. Furukawa, K. Ootsu, and T. Baba

A New Way to High Performance NFS for Clusters..........................................................R. Tang, J. Xiong, J. Ma, and D. Meng

A Hybrid Parallel Loop Scheduling Scheme on Heterogeneous PC

Clusters .............................................................................................................W.-C. Shih, C.-T. Yang, P.-I Chen, and S.-S. Tseng

Table-Driven Code Optimizer .......................................................................................S.-L. Yun and S.-M. Oh

**Session 1B3: Wireless Networks and Mobile Computing—I** (Room 3)

**Chair:** D. Manivannan

A Voronoi-Trajectory Based Hybrid Routing (VTBR) Algorithm for Wireless

Ad Hoc Networks with Obstacles.......................................................................................D. Wu, Y. Qu, and Z. Chi
An Efficient Distributed Broadcasting Algorithm for Wireless Ad Hoc Networks......................... Y. Li, S. Peng, and W. Chu
A Ring Removal Movement-Based Mobility Location Update Scheme................................. Y. Yang, J. Yang, and J. Cao
Monte Carlo Simulation of LEACH Protocol for Wireless Sensor Networks............................... Y. Wang and M. Xiong

Session 1B4: Grid Computing Systems—I (Room 4)
Chair: Xavier DEFAGO
A Scalable Security Architecture for Grid................................................................................... Q. Zhou, G. Yang, J. Shen, and C. Rong
Design and Implementation of Grid Monitoring System Based on GMA.............................. J. Liao, H. Cai, P. Jiang, and M. Chen
Heterogeneous Resource Selection with Portfolio Optimization in Grid Economy.............................. Y. Hua, C. Wu, H. Zhang, and L. Wu
WGMDS: A WSRF-Compliant Information Service on Wireless Grids ....... Y. Yang, M. Liu, C. Huang, and C. Gao
A Novel Security Model Based on Virtual Organization for Grid .................................................. X. Wu, G. Yang, J. Shen, and Q. Zhou

Session 1B5: Security, Reliability, and Fault-Tolerance—I (Room 5)
Chair: Yonggang Chu
A Simple Process Calculus for the Analysis of Security Protocols ........................................... Y. Gu, Y. Fu, and G. Li
D-S Evidence Theory and Its Data Fusion Application in Intrusion Detection... J. Tian, W. Zhao, R. Du, and Z. Zhang
Efficient Traitor Tracing Scheme Based on NTRU........................................................................ X. Lv, B. Yang, and C. Pei
A Study of Intrusion Signature Based on Honeypot........................................................................ J. Tian, J. Wang, R. Li, and X. Yang
The Architecture of the Large-scale Distributed Intrusion Detection System................................ Y. Chu, J. Li, and Y. Yang

Monday, December 5, 16:00-18:00

Session 1C1: Network Architectures (Room 1)
Chair: Keqiu Li
Active Probe of Available Bandwidth: Analysis and Improvement.......................................................... C. Zhu, C. Pei, Y. Yi, and D. Quan
CISOQ: A Practical High-Performance Packet Switch Architecture for the Support of Multicast Traffic........................................................................................................ X. Hu, J. Qu, B. Wang, and X. Li
Overlay Multicasting over Multihomed Proxies........................................................................... X. Chen, R. Yang, Q. Xia, H. Shao, and W. Wang
Research on New Types of Network Architecture ........................................................................ Y. Wang, M. Xia, F. Yi, and J. Zeng
Study on Network Topology Visualization Algorithm and Implement Based on A* Algorithm.......................................................... W. Yuan, C. Pei, H. Xiao, C. Zhu, N. Chen, and Y. Yi

Session 1C2: Communication and Multimedia Systems (Room 2)
Chair: Teruo Matuzawa
Construction of a Prototype of a Volume Communications Environment...... M. Watanabe, M. Okuda, T. Matsuzawa
VoD Service Model and Performance Evaluation on the China’s High Performance Broadband Information Network (3Tnet).................................................................................. F. Lin, X. Wang, and X. Xue
Detecting BGP Misconfiguration for BGP/MPLS VPNs........... H. Liang, G. Teng, H. Wang, D. Wang, and Y. Gao
A New Tunnel Scheme for Multimedia Communications Traversing NAT/Firewall in NGN.................................................G. Zheng, Z. Xie, B. Wang, and G. He
Study of Channel Characteristics of Power Line Communications Networks ................................M. Zhai, C. Liu, and H. Bi
The Maximal Rates of More General Complex Orthogonal Designs........................................H. Kan and H. Shen

Session 1C3: Wireless Networks and Mobile Computing—II (Room 3)
Chair: Tian Hui

Research on Multi-constrained QoS Routing Scheme Using Mean Field Annealing ......................L. Liu and G. Feng
Data Dissemination Model for Location-Based Services ..........................................................K. Park, M. Song, and K.-S. Kong
A Cluster-Based Energy-Efficient Scheme for Sensor Networks ...........................................J. Zhang, B. Huang, L. Tu, and F. Zhang
Secure Protocols Enhancement Based on Radio-Propagation Related Looser Assumptions in Mobile Ad Hoc Networks......................R. Yang, Q. Xia, Q. Pan, X. Huang, W. Wang, and M. Li

Session 1C4: Optical Networks (Room 4)
Chair: Zhanqi Xu

Dynamic Shared Path Protection Algorithm in WDM Mesh Networks under Service Level Agreement Constraints ..................................................R. He, B. Lin, L. Li, and C. Gu
A Unified Framing Protocol for Hybrid Data Transport ......................................................Z. Xu, C. Wang, C. Pei, and A. Wen
On-Line Routing in WDM-TDM Switched Optical Mesh Networks ..................................................A. Vishwanath and W. Liang
Wavelength Assignment for Parallel FFT Communication Pattern on Linear Arrays by Lattice Embedding ......................................................Y. Chen and H. Shen
Splitter Placement Problem on Directed Fiber Trees ............................................................................T. Hu and B.-H. Zhao

Session 1C5: Security, Reliability, and Fault-Tolerance—II (Room 5)
Chair: Kun Wang

On the Effectiveness of Multi-similarity for Early Detection of Worms............................H. He, M. Hu, H. Zhang, and Z. Tang
Intrusion Detection Based on an Improved ART2 Neural Network .....................................................D. Wu, J. Dai, and Z. Chi
Privacy Preserving ID3 Algorithm over Horizontally Partitioned Data .....................................M. J. Xiao, L. S. Huang, H. Shen, Y. L. Luo
Computing the Reliability for Clustered Ad Hoc Networks ...........................................................D. Wu, Q. Li, and Z. Chi
A Disaster Recovery System Model in an E-Government System............................................K. Wang, Z. Cai, Z. Li, and L. Zhou

Tuesday, December 6, 9:00-12:30

Keynote Session K-1: (Room 1)
Chair: Susumu Horiguchi

Future Technological Challenges for High Performance Computers
Dr. Tadashi Watanabe, NEC Corp., Japan

Session 2A1: Security, Reliability, and Fault-Tolerance—III (Room 1)
Chair: Zonghua Zhang

Intrusion Detection Combining Multiple Decision Trees by Fuzzy Logic.............J. Tian, Y. Fu, Y. Xu, and J. Wang
A New Approach to Automatically Detect Worms ............................................P. Wang, B.-X. Fang, and X.-C. Yun
Optimization of Intrusion Detection through Fast Hybrid Feature Selection ..........K. M. Shazzad and J. S. Park
An Efficient Keys Agreement for Multi-party’s Communication ......................P. Zhang, C. Ye, X. Li, and X. Ma
Worm Detection in Large Scale Network by Traffic......................................Y. Xin, B.-X. Fang, X.-C. Yun, and H.-Y. Chen

Session 2A2: Wireless Networks and Mobile Computing—III (Room 2)
Chair: Jaci R Luiz Bordim

Adaptive Carrier Sensing and Packet Sending—An Alternative to Boost the Performance in Directional Communications..................................................J. L. Bordim, T. Hunziker, and K. Nakano
Design and Analysis of High Speed WLAN Systems with Adaptive Margin Technology..................................................................................................X. Li, N. Liu, C. Pei, K. Yi, and W. Kou
An Efficient Topology Maintenance Algorithm Based on Shortest Path Tree for Wireless Sensor Networks ..........................................................Z. Shen, Y. Chang, X. Zhang, and C. Cui
Delay Character of a Novel Architecture for IEEE 802.16 Systems ....................Liu, X. Li, C. Pei, and B. Yang

Session 2A3: Ubiquitous Computing Systems (Room 3)
Chair: Xiaoli Su

Developing Context-Aware Applications in Ubiquitous Computing Environments..................................J. Sun and Z. Wu
Reconfigurable Computing in Ubiquitous Computers: A Roadmap .......................L. Yan and Z. Liang
An Adaptable Software Architecture Based on Mobile Components in Pervasive Computing..........................................................S. Han, S. Zhang, Y. Zhang, and C. Fan
On-Chip Debug for an Asynchronous Java Accelerator......................................Z. Liang, J. Plosila, L. Yan, and K. Sere
Design of Virtual Personal Computing Environment for Ubiquitous Computing..............................................................................................................X. Su, J. Li, F. Jiang, H. Shi, J. Guo, and Z. Zhu

Session 2A4: Internet Computing and Web Technology—II (Room 4)
Chair: Keqiu Li

Web Media Service Based on Streaming Player Supporting Ubiquitous Environment............................................................Sangok Kim, K. Lee, Z. Jiang, H. Bae, and Sangwook Kim
Design and Implementation of a Script Language Based On-Demand Service Framework.........................................................................................................Z. Huang and C. He
Integration and Share of Spatial Data Based on Web Service ..............................X. Ma, Q. Pan, and M. Li
Ontology-Based 3D Body Scanning Data Sharing System ........................................X. Zhu and X. Zhang
Optimal Selection of Web Services for Composition Based on Interface-Matching and Weighted Multistage Graph.........................................................Y. Gao, B. Zhang, J. Na, L. Yang, Y. Dai, and Q. Gong
Research on Improved Role Hierarchy Model in Extended Organization PKI Networks ........................................................................................................S. Zhang and B. Wang

Session 2A5: Simulation and Performance Evaluation—I (Room 5)
Chair: Jin guo
Performance Comparison between VOPP and MPI ...........................................Z. Huang, M. Purvis, and P. Werstein
Component Based Performance Prediction for Network Processor Based System.....H. Xiao, L. Zhang, and D. Wu
Simulation-Based Optimization Strategy for Liquid Fueled Multi-stage Space......S. Akhtar and L. He

Tuesday, December 6, 13:30-15:30

**Session 2B1: Security, Reliability, and Fault-Tolerance—IV** (Room 1)
Chair: He Guo

Wrapping Client-Server Application to Web Services for Internet Computing ....H. Guo, C. Guo, F. Chen, H. Yang
A New Algorithm to Solve Synchronous Consensus for Dependent Failures..............J. Wang and M. Song
An Efficient Asynchronous Proactive RSA Scheme .............................................R. Zhang and K. Chen
An Efficient Group Key Management Scheme: Link Tree Protocol.....................J. Zhang, F. Ma, D. Gu, and Y. Bai
Fast Two Phrases PPM for IP Traceback .............................................................Q. Li, Q. Feng, L. Hu, and J. Ju

**Session 2B2: Grid Computing Systems—II** (Room 2)
Chair: Libing Wu

JSChord: A Peer-to-Peer System to Achieve Max Throughput............................Y. Shao, F. Hong, and M. Li
An Adaptive Advance Reservation Mechanism for Grid Computing .................L. Wu, C. Wu, J. Cui, and J. Xing
Dynamic Role and Context-Based Access Control for Grid Applications ........H. Yao, H. Hu, B. Huang, and R. Li
Integrating Agent and Web Service into Grid Service Workflow System ....Z. Zhai, Y. Yang, W. Guo, and Z. Tian

**Session 2B3: Software Technology and Programming Languages**
(Room 3)
Chair: Chengwan He

Role Based Platform Independent Web Application Modeling.................................C. He, W. Tu, and K. He
Chocolat/SMV: A Translator from CafeOBJ into SMV.......K. Ogata, M. Nakano, M. Nakamura, and K. Futatsugi
Formal Description and Complexity Analysis of Routing in Mobile Ad Hoc System.................................................................J. Xie and L. Huang
Coalgebraic Component Specification and Verification in RSL.........................M. Sun, B. K. Aichernig, and N. Zhang
Software Component Model for Network Processor Based System ..................H. Xiao, L. Zhang, and D. Wu
A Segment-Based Approach of Defending against Buffer Overflow Attacks........Y. Tan, J. Zheng, and Y. Cao

**Session 2B4: Agent Technology—I** (Room 4)
Chair: Wenyu Qu

An OO-Based Design Model of Software Agent .............................................J. Li, X. Mao, and Y. Shu
A Novel Peer-to-Peer Intrusion Detection System Using Mobile Agents in MANETs .................................................................K. Xiao, J. Zheng, X. Wang, and X. Xue
A Survey of Mobile Agent-Based Fault-Tolerant Technology..........................W. Qu, H. Shen, and X. Defago
Agent-Oriented Early Requirement Analysis of Distributed Simulation Environment of Fluid Flow .................................................................J. Li, Z. Qi, and Z. Chen
Research of Multi-agent System Model and Learning Method.................................................................Y. Zhang and Y. Han

**Session 2B5: Simulation and Performance Evaluation—II** (Room 5)
**Chair: Zhiyi Huang**

An Asynchronous Event Relation Model for Monitoring Distributed System........................................M. Chen and B. Wan
A Distributed Architecture for Network Performance Measurement and Evaluation System .................................H. Sun, B. Fang, and H. Zhang
A Study of Parallel Prefetching Algorithms Using Trace-Driven Simulation........................................D. Hu, C. Xie, and C. Bin
Performance Evaluation of SLIM and DRBL Diskless PC Clusters on Fedora Core 3 .........................................................C.-T. Yang, P.-I Chen, and Y.-L. Chen

**Tuesday, December 6, 16:00-18:00**

**Session 2C1: Security, Reliability, and Fault-Tolerance—V** (Room 1)
**Chair: Dajin Wang**

Access Control List Mediation System for Large-Scale Network ........................................................................K. Lee, Z. Jiang, Sangok Kim, Sangwook Kim, and Sunkyung Kim
An Efficient Protocol for the Problem of Secure Two-Party Vector Dominance.....Y. Sang, H. Shen, and Z. Zhang
Fault-Tolerance Schemes for Hierarchical Mesh Networks ..........................................................J. Zurawski and D. Wang
Enhancing Attack Survivability of Gnutella-Like P2P Networks by Targeted Immunization Scheme ........................X. Huang, Y. Li, R. Yang, and F. Ma

**Session 2C2: Grid Computing Systems—III** (Room 2)
**Chair: Yamin Li**

JSGrid: An Environment for Heterogeneous Cluster Computing...K. Takeda, S. Ono, C. J. Ashley, and S. Nakayama
A Scheduling Method for Divisible Workload Problem in Grid Environments ..........................................................N. T. Loc, S. Elhaffar, T. Katayama, and H. T. Bao
Design and Implementation of TIGER Grid: An Integrated Metropolitan-Scale Grid Environment..............................C.-T. Yang, K.-C. Li, W.-C. Chiang, and P.-C. Shih
Integration Patterns of Grid Security Service ........................................................................X. Qu, X. Yang, J. Zhong, and X. Lv
MAS Organization: Design, Enforcement and Instantiation ...............................................C. Ye, K. Xie, Y. Chen, and X. Wang

**Session 2C3: Internet Computing and Web Technology—I** (Room 3)
**Chair: Susumu Horiguchi**

Incentives for Participating in a Hybrid Peer-to-Peer System .........................................................G. Sun, G. Chen, and J. Wu
Development of an Internet Home Automation System Using Java and Dynamic DNS Service.................................X. Zhang, J. Sun, and L. Zhou
Remote Monitoring of Air-Quality over Internet .............................................................................................H. Wang and R. Ma
Using Semantic Web Technologies to Specify Constraints of RBAC .........................................................D. Wu, J. Lin, Y. Dong, and M. Zhu
Verifying Web Services Composition: A Transformation-Based Approach ......................................................Y. Yang, Q. Tan, Y. Xiao, J. Yu, and F. Liu
A Case of Application-Level Multicast for Real-Time Video Delivery over Internet......................................Z. Liu and G. He

Session 2C4: Agent Technology—II (Room 4)
Chair: Wenyu Qu

A Study of Distributed Parallel Processing for Queen Ant Strategy in Ant Colony Optimization ..................................................I. Iimura, T. Ito, K. Hamaguchi, and S. Nakayama
Multi-agent-Oriented Modeling for Intelligence Reconnaissance System .........................................................X. Li, X. Liu, and N. Hao
Describer: Service-Oriented Multiagent Architecture for Mobile Environment ..............................................Z. Liu, D. Wang, and H. Sheng
A Layered Resource Management Model in P2P System ..................................................................................D. Wang and R. Zhao

Session 2C5: Tools and Environments for Software Development (Room 5)
Chair: Zhiyi Huang

Collaborative MPEG-4 Contents Authoring, Presentation and Interaction in a Mobile Environment ..................................................S. Li, SangWook Kim, and SunKyung Kim
A Message-Based Software Architectural Style for Distributed Application .................................................G. Tan, X. Li, J. Wu, H. Zhao, C. Li
An ECA Rules Based Middleware Architecture for Wireless Sensor Networks ...........................................C. Zhang, M. Li, and Q. Pan
Simulating Large-Scale Traffic Aggregation in an Automatic Switched Optical Network ..............................................................H. Wang, X. Wang, and X. Xue

Wednesday, December 7, 9:00-12:30

Keynote Session K-2: (Room 1)
Chair: Koji Nakano

An Agile Programming Model for Grid End Users
Zhiwei Xu, Chinese Academy of Sciences, China

Session 3A1: Parallel and Distributed Algorithms—I (Room 1)
Chair: Shi-Jinn Horng

Multi-session Partitioning for Parallel Timing Optimization ..............................................................J. Kim, J. Neves, and M. Papaefthymiou
An O(1) Time Parallel Algorithm for the Dominance Counting and 3D Block-Based Medial Axis Transform on AROB ..........................................S.-Y. Lin, S.-J. Horng, T.-W. Kao, and Y.-R. Wang
Optimal Routing in a Small-World Network .................................................................................................J. Zeng and W.-J. Hsu
A Distributed Self-Stabilizing Algorithm for Finding a Connected Dominating
Session 3A2: Wireless Networks and Mobile Computing—IV (Room 2)
Chair: Koji Nakano

Comparative Analysis of Scheduling Algorithms in Ad Hoc Mobile Networking ...........................................H. Xu, X. Wang, and C. K. Toh
Research of TCP Vegas Congestion Control Algorithm in Ad Hoc Networks .............................................C. Gong, Z. Zhao, and G. Wang

Session 3A3: Resource and Task Scheduling—I (Room 3)
Chair: Wei Ren

LRC-RED: A Self-Tuning Robust and Adaptive AQM Scheme..........................................................N. Xiong, Y. Yang, X. Défago, and Y. He
Approximating Spanning Trees with Inner Nodes Cost ..........................................................R. Fleischer, Q. Ge, J. Li, S. Tian, and H. Wang
A Recursion Nearest Based Method for Characterizing IP Address .........................................................W. Ren and H. Jin
Mapping Resources for Network Emulation with Heuristic and Genetic Algorithms ..........................................................Y. Liu, Y. Li, K. Xiao, and H. Cui
Accurate DCA Algorithm for TCP Congestion Avoidance ..........................................................M. Xia, F. Yi, Y. Wang, and J. Zeng

Session 3A4: Image Processing and Computer Graphics—I (Room 4)
Chair: HyungJun Kim

AVS Generic Audio Coding ..........................................................................................................................R. Hu, S. Chen, H. Ai, and N. Xiong
A Watermarking Method Using Quantization and Statistical Characteristics of Wavelet Transform ..........................................................K. Byun, S. Lee, and H. Kim
New Multiple Description Layered Coding Method for Video Communication ..................................................M. Yu, X. Ye, G. Jiang, R. Wang, F. Xiao, and Y. Kim

Session 3A5: Network Routing—I (Room 5)
Chair: Xingwei Wang

A QoS Multicast Routing Algorithm Based on Shrinking-Chaotic-Mutation Evolutionary Algorithm in IP/DWDM Optical Internet ..................................X. Wang, P. Liu, and M. Huang
A Distributed Entropy-Based QoS Multicast Routing Optimization Algorithm for MANET ..........................................................C. Gui and B. Sun
A Strategy for Routing Messages between Elements in a Hypercube with Faulty Links ..................................D. Gichev
A New Routing Method to Tolerate both Convex and Concave Faulty Regions in Mesh/Torus Networks ..........................................................H. Gu, H. Shen, Z. Liu and G. Kang
Thursday, December 8, 9:00-12:30

**Keynote Session K-3: (Room 1)**
Chair: Hong Shen

*Scalable and Practical Nonblocking Switching Networks*
Si Qing Zheng, University of Texas at Dallas, USA

**Session 4A1: Network Routing—I** (Room 1)
Chair: Huiran Wang

A Dual-Channel Routing Scheme in Ad Hoc Networks
Q. Wang, J. Sun, and G. Wang

A Hybrid Intelligent QoS Multicast Routing Algorithm in NGI
J. Wang, X. Wang, and M. Huang

Research of Multicast Server Selection Based on Ant Algorithm
Y. Liu, J. Cao, L. Tan, and K. Xu

Aggregation Tree Routing Algorithm for Dynamic Topology
G. Tan, N. Han, Y. Liu, H. Yao, and D. Li

Solving the Vehicle Routing Problem with Stochastic Demands and Customers
C. Fu, H. Wang, L. Zhu

**Session 4A2: Parallel and Distributed Algorithms—I** (Room 2)
Chair: Geng Yang

Encoding a Binary Search Tree in Constant Time on BSR
L. Xiang, K. Cheng, and K. Ushijima

Parallel Downloading Algorithm for Large-Volume File Distribution
H. Chen, Z. Gong, and Z. Huang

Localized Algorithm for Coverage in Wireless Sensor Networks
H. Xu, L. Huang, Y. Wan, and K. Lu

Spatial Gossip on the Percolation Model
Q. Xia, R. Yang, and W. Wang

An Agent-Based Deadlock Detection/Resolution Algorithm for the AND Model
X. Cheng, X. Yang, and F. Jin

Ubicast: An Enhanced Application-Level Multicast Protocol
Z. Chu, Y. Yang, H. Tu, and W. Kong

**Session 4A3: Applications—I** (Room 3)
Chair: Chunlu Liu

Towards Efficient and Scalable Searches for Mass-Market, Decentralized File Sharing
X. Huang, Y. Li, F. Liu, and F. Ma

Evolutionary Multiobjective Optimization in Engineering Management:
C. Liu

An Empirical Study on Bridge Deck Rehabilitation

AMS Based Reconstruction Algorithm with Two-Dimensional Threshold
X. Yang, C. Pei, C. Zhu, and Y. Li

Development of the Real-Time Visualization System on Network
H. Oiwa, Y. Asano, H. Matsumoto, T. Matsuzawa

Structural Analysis Based on Baseline in Printed Mathematical Expressions
X. Tian and H. Fan

**Session 4A4: P2P Systems** (Room 4)
Chair: Sunil Kumar Pandey

Ontology-Based Clustering and Routing in Peer-to-Peer Networks
J. Li and S. Vuong
A P2P Based Personal Digital Library for Community....................................................... Y. Xu
A Novel Incentive Mechanism for P2P Systems............................................................. T. Wang, X. Lu, and M. Hou
Research on Collaborative Service Solution in Ubiquitous Learning Environment........ G. Zhang and Q. Jin
An Improved P2P Model Based on Chord ............................................................... D. Yu, X. Chen, and Y. Chang

**Session 4A5: Image Processing and Computer Graphics—II** (Room 5)
**Chair:** Fumihiko Ino

Audio Watermarking Algorithm Based on Wavelet Packet and Psychoacoustic Model ....................................................... R.-D. Wang, D.-W. Xu, and Q. Li
An Improved Basic-Unit Layer Rate-Control Scheme on H.264 ............................................. S. Su, S. Yu, and J. Zhou
Performance Study of Nonrigid Registration Algorithm for Investigating Lung Disease on Clusters .................. F. Ino, Y. Tanaka, H. Kitaoka and K. Hagihara
A New Adaptive Multistage Median Filter ................................................................. H. Song, G. Wang, and X. Zhao
Gabor Filterbank and Its Application in the Fingerprint Texture Analysis ...................... Y. Xu and X. Zhang
Iris Image Denoising Algorithm Based on Phase Preserving ........................................ J. Wang and R. Ding

**Thursday, December 8, 13:30-15:30**

**Session 4B1: Image Processing and Computer Graphics—III** (Room 1)
**Chair:** Xijun Hua

AnchorsClu: An Anchorperson Shot Detection Method Based on Clustering................................................................. X.-D. Luan, Y.-X. Xie, L.-D. Wu, J. Wen, and S.-Y. Lao
An Approach to Image Retrieval Based on Concept Lattices and Rough Set Theory .................. M. Li and T. Wang
Number and Letter Character Recognition of Vehicle License Plate Based on Edge Hausdorff Distance ........................................................................................................ S. Tang and W. Li
Residual Texture Based Fast Block-Size Selection for Inter-frame Coding in H.264/AVC ................................................................. Z. Wang, Q. Peng, and Y. Zeng
Stereo Correspondence Using Color Based on Competitive-Cooperative Neural Networks ................................................................. X. Hua, M. Yokomichi, and M. Kono

**Session 4B2: Applications—II** (Room 2)
**Chair:** Frode Eika Sandnes

Design and Implementation of a WBEM Disk Array Provider ........................................ Y. Tan, H. Deng, G. Lin, and X. Zhang
Symmetry and Autobisimulation .................................................................................. J. Jiang and J. Wu
Authentication with Controlled Anonymity in P2P Systems ........................................ A. Wierzbicki, A. Zwierko, and Z. Kotulski
A Kind of Negotiation Policy for Resource Allocation in Distributed Manufacturing Environment ............................................. C. Lv, Y. Zhu, and C. Yin
A Model for NP-Based Application Design .............................................................. Z. Shan, R. Zhao, and K. Xie
A New Algorithm for Partner Selection in Virtual Enterprise ........................................ Z. Zeng, Y. Li, S. Li, and W. Zhu
A Distributed and Cooperative Target Localization Algorithm in Wireless Sensor Networks ........................................................................... X. Pi and H. Yu
Session 4B3: Database Applications and Data Mining (Room 3)
Chair: Zonghua Zhang

Event Driven RFID Reader for Warehouse Management ..............................................D. Yang and P. Zou
ARV-Based Array Grouping and Data Distribution in OpenMP/JIAJIA.......................L. Zeng, X. Yang, and C. Huang
Attribute Value Reduction in Variable Precision Rough Set......................................F. Nian and M. Li
A Window-Based Algorithm for Skyline Queries.........................................................J. Yu, X. Liu, and G. Liu
Quantitative Association Rules Mining Methods with Privacy-Preserving....................Z.-Y. Chen and G.-H. Liu
A Novel Text Classification Algorithm Based on Naïve Bayes and KL-Divergence ..........B. Wang and S. Zhang
Web Document Classification Based on Extended Rough Set .....................................G. Yi, H. Hu, and Z. Lu

Session 4B4: Intelligent Computing and Neural Networks (Room 4)
Chair: Haibin Kan

A Genetic Algorithm Optimized New Structured Neural Network for Multistage........L. Yang, Y. Dai, B. Zhang, and Y. Gao
Intelligent Compaction Control Based on Fuzzy Neural Network ...................................Y. Ju, G. Lin, Y. Fan, and Z. Liu
A Novel Genetic Algorithm for HP Model Protein Folding..........................................J. Song, J. Cheng, T. Zheng, and J. Mao
An Improved Genetic Algorithm for Multi-objective Optimization..............................F. Lin and G. He
A Coevolutionary Model Based on Dynamic Combination of Genetic Algorithm and Ant Colony Algorithm .................................................................M. Chen and Q. Lu

Session 4B5: Parallel and Distributed Algorithms—III (Room 5)
Chair: Shietung Peng

Digital Modulation Identification Based on Software Radio Platform..........................J. Chen, Y. Kuo, J. Li, F. Fu, and C. Li
Parallel Algorithm for Computing Reversal Distance .................................................Y.-F. Shen and G.-L. Chen
Solving Very Large Traveling Salesman Problems by SOM Parallelization....................H. Schabauer, E. Schikuta, and T. Weishäupl

Thursday, December 8, 16:00-18:00

Session 4C1: Parallel and Distributed Algorithms—IV (Room 1)
Chair: Shietung Peng

Scalable Parallel Quadrilateral Mesh Generation Coupled with Mesh Partitioning ....J. Chen, Y. Zheng, and X. Ning
An Efficient Multiple-Precision Division Algorithm ....................................................L. Huang, Y. Luo, H. Zhong, and H. Shen
A High-Throughput Fibre Channel Data Communication Service.............................Y. Tan, J. Jin, Y. Cao, and L. Zhu
Solution to Multi-objective Fuzzy Optimization Dynamic Programming with Uncertain Information .........................................................Y. Jin, H. Shen, K. Li, and Z. Chi
A New Solution to Non-structural System Group Decision-Making Problems ..........Y. Jin, H. Shen, K. Li, and Z. Chi

Session 4C2: Computer Mathematics (Room 2)
Chair: Jun Ma

The Calculational Method for Spectrogram and Variance-Length Curve
of Yarn Based on Multiresolution Analysis.........................................................J. Ma and N. A. Korobov
Constructing SVK_Lattices from Cyclic Bases..................................................W. Yu, D. He, and Y. Zheng
Hamiltonian-Like Properties of k-Ary n-Cubes..........................................D. Wang, T. An, M. Pan, K. Wang, and S. Qu
Embedding Paths of Different Lengths into Crossed Cubes......................................J. Fan, X. Lin, and X. Jia
The Eigen-Problem in the Completely Max-Algebra..............................................J. Ma, Y. Gao, and Z. Y. Dai

Session 4C3: Knowledge Based Systems (Room 3)
Chair: Hannes Schabauer

Research on Application of Development Method of Knowledge Base
in the Integrated System for ICAD.................................................................P. Xie, Y. Kang, and Q. Zhang
A DL-Based Approach for Product Knowledge Reasoning ...................................X. Fu, S. Li, and N. Channa
Towards a Knowledge-Based System of Distributed Configuration..........................X. Fu and S. Li
The Research on Decision Approach of Data Dependence in Dynamic Workflow System.............................................................S. Zhang and B. Wang
Decision Tree’s Pruning Algorithm Based on Deficient Data Sets .....................Y. Zhang, Z. Chi, and D. Wang
Knowledge Discovery and Ontology-Based Services on the Grid (A Survey Report).....S. K. Pandey, B. R. Mishra

Session 4C4: Image Processing and Computer Graphics—IV (Room 4)
Chair: Haibin Kan

Perceptually Optimized Error-Resilient H.264 Video Streaming System
over the Best-Effort Internet..............................................................................N. Liao, Z.-Y. Quan, and A.-D. Men
An Automatic and Robust Algorithm for Segmentation of Three-Dimensional Medical Images ..............................................................H. Zhang, H. Shen, and H. Duan
An Image Hiding Method Based on Correlation Analysis and Image Fusion............B. Liu, Z. Li, and Y. Li
An Invariant Feature Representation for Shape Retrieval ....................................S. H. Han and S. Y. Yang
A New Approach of the Vehicle License Plate Location ....................................H. Xu, F. Yu, J. Jiao, and H. Song
Toward Blind Logo Watermarking in JPEG-Compressed Images ........................Q. Gong and H. Shen

Session 4C5: Resource and Task Scheduling—II (Room 5)
Chair: Yang Wang

Load Balance Heuristics for Synchronous Iterative Applications on Heterogeneous Cluster Systems .................................................................W. Zhang, M. Hu, and H. Zhang
Security-Driven Scheduling Algorithms Based on EigenTrust in Grid...............K. Li, Y. He, X. Liu, and Y. Wang
Gracefully Degrading Battery-Aware Static Multiprocessor Schedules Based on Symmetric Task Fusion ..................................................F. E. Sandnes, O. Sinnen, and Y.-P. Huang
Using Dataflow Information to Improve Inter-workflow Instance Concurrency ............Y. Wang and P. Lu
A Post-Scheduling Optimization Algorithm of Distributed Real-Time Tasks ..........M. Fang, Y. Yuan, and H. Liang