

Proceedings

**2007 Japan–China Joint Workshop on  
Frontier of Computer Science  
and Technology  
(FCST 2007)**

**1–3 November 2007**

**Wuhan, China**



Los Alamitos, California  
Washington • Tokyo



# Contents

## Proceedings of the 2007 Japan–China Joint Workshop on Frontier of Computer Science and Technology

**FCST 2007**

---

<b>Message from the Workshop Chairs</b> .....	vii
<b>Workshop Organization</b> .....	viii

---

### Session 1: Networking and Grid

Designing Piecewise QoS Routing Protocol in Large-Scale MANETs .....	1
<i>Guojun Wang, Qingjun Mo, Minyi Guo, and Weijia Jia</i>	
Performance Evaluation to Optimize the UMP System Focusing on Network Transmission Speed .....	7
<i>Mianxiong Dong, Shinji Watanabe, and Minyi Guo</i>	
Trust Propagation and Aggregation in Wireless Sensor Networks .....	13
<i>Hai Guang Chen, Huafeng Wu, Xiu Cao, and Chuanshan Gao</i>	
Research on Architecture of Grid-Based Simulation Platform .....	21
<i>Song Wu, Li Qi, Hai Jin, and Heng He</i>	

### Session 2: Storage System and Technology

A Dynamic Metadata Equipotent Subtree Partition Policy for Mass Storage System .....	29
<i>Gongye Zhou, Qiuju Lan, and Jincan Chen</i>	
A Prototype for Active Service System .....	35
<i>Mo Sha, Ming Chen, Yuebin Bai, Boliang Chen, and Xiaocong Wang</i>	
High Availability Storage System Based on Two-Level Metadata Management .....	41
<i>Fang Wang, Yinliang Yue, Dan Feng, Juang Wang, and Peng Xia</i>	
Probabilistic Access Allocation of Disk Files for Energy-Efficient Server Systems .....	49
<i>Wenyu Qu, Masaru Kitsregawa, and Keqiu Li</i>	
A Case Study: Performance Evaluation of a DRAM-Based Solid State Disk .....	57
<i>Hitoshi Oi</i>	

### Session 3: Security and Scheduling

Improved Policy Database System for Protecting Possession Sensitive Attributes in Automated Trust Negotiation .....	61
<i>Hongwei Lu and Bailing Liu</i>	
A Novel Security Risk Evaluation for Information Systems .....	67
<i>Zaobin Gan, Jiufei Tang, Ping Wu, and Vijay Varadharajan</i>	

Adaptable Scheduling Framework for Window-Based Real-Time Constraints .....	74
<i>Gang Tu, Jun-lin Li, and Fu-min Yang</i>	
The Research about Containment the Radial Error Propagation in Self-Servowriting in Hard Disk .....	80
<i>Xiaogang Zhao, Changsheng Xie, and Haiwei Wang</i>	

## Session 4: Query Scheme

An Outward-Appearance Patent-Image Retrieval Approach Based on the Contour-Description Matrix.....	86
<i>Zeng Zhiyuan, Zhao Juan, and Xu Bin</i>	
Executing Query over Encrypted Character Strings in Databases .....	90
<i>Hong Zhu, Jing Cheng, Renchao Jin, and Kevin Lü</i>	
A High-Level Query Interface for Web User’s Access to Data Resources .....	98
<i>Masaki Hasegawa, Subhash Bhalla, and Tomoko Izumita</i>	
A User Oriented Query Interface for Web-Based Geographic Information Systems .....	106
<i>Masaki Hasegawa, S. Bhalla, and T. Izumita</i>	
SDBIA: A Novel Approach to Improve the Reading Performance of Large Objects for Object-Based Storage Device.....	114
<i>Jingning Liu, Wanli Peng, Fang Wang, and Yinliang Yue</i>	

## Session 5: Applications

A New Quasi-Human Algorithm for the Strongly Heterogeneous Container Loading Problem.....	119
<i>Wenqi Huang and Kun He</i>	
Adaptive Image Watermarking Algorithm in Contourlet Domain .....	125
<i>Shangqin Xiao, Hefei Ling, Fuhao Zou, and Zhengding Lu</i>	
Scheduling Algorithm of Update Transactions and Quality of Service Management Based on Derived Data in Real-Time and Mobile Database Systems.....	131
<i>Guohui Li, Jun Xiang, Bing Yang, and Hui Chen</i>	
Hybrid Tracking for Augmented Reality GIS Registration .....	139
<i>Min Sun, Mei Li, Feizhou Zhang, Zhipeng Wang, and Daozheng Wu</i>	
Face Detection Based on LDA and NN .....	146
<i>Hiroyuki Kobayashi and Qiangfu Zhao</i>	

<b>Author Index</b> .....	155
---------------------------	-----