The 2009 IEEE International Conference on Networking, Architecture and Storage
July 9 – 11, 2009
Zhang Jia Jie, China

July 8: Noon – 6pm, Registration

Day 1: July 9

8:00 – 8:30 am	Breakfast		
8:30 – 9:00 am	**Welcome**		
9:00 – 10:00 am	**Keynote Speech: Prof. Kai Hwang @Multi-purpose Room** **Virtual Clusters for Grid, Cloud, and High-performance Computing** **Chair: Yifeng Zhu**		
10:00 – 10:30 am	Coffee/Tea Break		
10:30 – 12:00	Session 1A (Room A)		Session 1B (Room B)
Noon – 2:00pm	Lunch		
2:00 – 3:45 pm	Session 2A (Room A)	Session 2B (Room B)	Session 2C (Room C)
3:45 – 4:00 pm	Coffee/Tea Break		
4:00 – 5:00 pm	Short Paper Session 3A (Room A)	Short Paper Session 3B (Room B)	Short Paper Session 3C (Room C)
6:00-8:30pm Conference Banquet	**Best Paper Award Ceremony** **Keynote Speech: Lionel M. Ni @Hua Tian Jin Ge** **From Data Collection to Knowledge Discovery** **Chair: Qing Yang**		

Day 2: July 10

8:00 – 9:00 am	Breakfast		
9:00 – 10:00 am	**Keynote Speech: Ethan Miller @Multi-purpose Room** **Challenges in Preserving Digital Data for the Long Term** **Chair: Xubin He**		
10:00 – 10:30 am	Coffee/Tea Break		
10:30 – 12:00	**Industrial Panel Presentation @Multi-purpose Room**		
Noon – 2:00pm	**Lunch**		
2:00 – 3:45 pm	Session 4A (Room A)	Session 4B (Room B)	Session 4C (Room C)
3:45 – 4:00 pm	Coffee/Tea Break		
4:00 – 5:30 pm	Session 5A (Room A)		Session 5B (Room B)
8:00 – 9:30	**Zhangjiajie Tujia Folk Custom Show**		

Day 3: July 11
  Tour

Detailed Program of the 2009 IEEE International Conference on Networking, Architecture and Storage

Day 1: July 9, Thursday

9:00 – 10:00 Keynote, Multi-Purpose Room
Virtual Clusters for Grid, Cloud, and High-performance Computing
Professor Kai Hwang

Dr. Kai Hwang is a Professor of Electrical Engineering and Computer Science and Director of Internet and P2P/Cloud Computing Laboratory at the University of Southern California (USC). He received the Ph.D. in Electrical Engineering and Computer Science from the University of California, Berkeley in 1972. Prior to joining USC in 1985, he has taught at Purdue University for many years. He has served as a visiting Chief Scientist at the Institute of Computing Technology, Chinese Academy of Sciences during 2008. Presently, he also serves as as an EMC-endowed visiting Professor at Tsinghua University. An IEEE Fellow, he specializes in computer architecture, parallel processing, Internet security, and distributed computing systems. He has published 8 books and over 210 scientific papers in these areas. He is the founding Editor-in-Chief of the Journal of Parallel and Distributed Computing. He is also on the Editorial Board of IEEE Transactions on Parallel and Distributed System. He has lectured worldwide and performed advisory work for IBM, Intel, MIT Lincoln Lab., JPL in Caltech, Academia Sinica in China, ETL in Japan, GMD in Germany, and INRIA in France.

Session 1A Wireless Sensor Networks **10:30 – 12:00, Room A** **Session Chair: Masaru Takesue, Hosei University, Tokyo, Japan**	**Session 1B Storage Virtualization and Concurrency** **10:30 – 12:00, Room B** **Session Chair: Li Shen, National University of Defense Technology**
➢ ***An Energy-efficient Broadcast Control Protocol for Wireless Sensor Networks*** Bin Zeng, Lu Yao, Department of Management, Naval University of Engineering, YongQian He, Repair and Maintenance Factory of Naval Aircraft, 92854 Unit ➢ ***A Data Transmission Mechanism for Survivable Sensor Networks*** Ruiping Ma, Liudong Xing University of Massachusetts - Dartmouth, USA, Tongdan Jin Texas A&M International University, USA, Tailiang Song Beijing Institute of Technology, Beijing, China ➢ ***Preserving Relay Connectivity and Coverage in Heterogeneous Wireless Sensor Networks*** Jun Wen, Guofu Wu, Dongsong Ban, Jie Jiang, Wenhua Dou, School of Computer, National University of Defense Technology ➢ ***TinyBee: Mobile Agent based Data Gathering System in Wireless Sensor Networks*** Kaoru Ota and Mianxiong Dong, School of Computer Science and Engineering, University of Aizu, Xiaolin Li, Scalable Software Systems Laboratory, Computer Science Department, Oklahoma State University	➢ ***A Performance Isolation Algorithm for Shared Virtualization Storage System*** Ke Jian, Na Wen-wu, Zhu Xu-dong, Han Xiao-ming, Zhang Jian-gang, Xu Lu, Institute of Computing Technology, Chinese Academy of Sciences ➢ ***Virtual Disk Image Reclamation for Software Updates in Virtual Machine Environments*** Bin Chen, Nong Xiao, Zhiping Cai, Zhiying Wang, School of Computer, National University of Defense Technology, China ➢ ***Performance and Consistency Improvements of Hash Tree based Disk Storage Protection*** Fangyong Hou, Nong Xiao, Yuhua Tang, Hongjun He, National University of Defense Technology, China ➢ ***Data Currency in Replicated Distributed Storage System*** Bingheng Yan, Depei Qian, Yuanqiang Huang, Beihang University

Session 2A Grid Computing 2:00 – 3:45, Room A Session Chair: Xiao Qin, Auburn University	Session 2B Security & Availability 2:00 – 3:45, Room B Session Chair: Liang Fang, National University of Defense Technology	Session 2C P2P and QoS 2:00 – 3:45, Room C Session Chair: Xiaowen Chu, Hong Kong Baptist University
➢ **Dynamic Grid Resource Scheduling Model Using Learning Agent** Bin Zeng, Jun Wei, HaiQin Liu, Department of Management, Naval University of Engineering ➢ **Evaluating the Effect of Huge Page on Large Scale Applications** Panyong Zhang, Bo Li, Zhigang Huo, Dan Meng. National Research Center for Intelligent Computing Systems, Institute of Computing Technology, Chinese Academy of Sciences ➢ **Group-by Query Process in Middleware of Large Scale Data Intensive Systems** Song Huaiming, An Mingyuan, Wang Yang, Wang Weiping, Sun Ninghui, Institute of Computing Technology, Chinese Academy of Sciences ➢ **Virtual Machine Scalability on Multi-Core Processors Based Servers for Cloud Computing Workloads** M. Hasan Jamal, Abdul Qadeer, Al-Khawarzimi Institute of Computer Science, University of Engineering and Technology, Lahore, Pakistan, Abdul Waheed, Cisco Systems, USA, Jason Ding, Cisco Systems, USA, Waqar Mahmood, Al-Khawarzimi Institute of Computer Science, University of Engineering and Technology, Lahore, Pakistan	➢ **An HTTP Extension for Secure Transfer of Confidential Data** Masaru Takesue, Dept. of Applied Informatics, Hosei University, Tokyo, Japan. ➢ **An Aggregation-based Raw Reputation Generation Approach** Zhang Jianzhong, Zhang Tianyan, Lan Xiaofeng, Xu Jingdong, Dept. of Computer Science, Nankai University, P.R.China ➢ **Reliable lightpath routing in optical mesh networks under multiple failures** Shengli Yuan, Department of Computer and Mathematical Sciences, University of Houston – Downtown ➢ **Community-base Fault Diagnosis Using Incremental Belief Revision** Yongning Tang Illinois State University Normal IL, USA, Guang Cheng SouthEast University Nanjing, China, Zhiwei Xu University of Michigan-Dearborn Dearborn MI, USA, Ehab Al-shaer DePaul University Chicago IL, USA ➢ **Reconstruction of Worm Propagation Path by Causality** Wei Shi, Qiang Li, Jian Kang, Dong Guo, College of Computer Science and Technology, JiLin University, Changchun, Jilin, China	➢ **Context aware peer-to-peer protocol for mobile ad hoc networks** Nadir Shah, Depei Qian, School of Computer Science and Engineering, BUAA, China ➢ **A Teletraffic Perspective on Relay-Node Selection Strategy in VoP2P System** Wen-Kang Jia, Yaw-Chung Chen, Department of Computer Science, National Chiao-Tung University, Hsinchu, Taiwan ➢ **Analysis of Internet Specific Area Topology Properties** Zhenhan Wei, Ming Chen, Honghua Zhao Dept. of Computer Science and Engineering PLA University of Science and Technology,China ➢ **Probabilistic QoS Guarantees, downlink and uplink scheduling studies in a Bluetooth piconet** Karima MAALAOUI, University of Manouba, Tunisia

Session 3A Network Short Papers 4:00 – 5:00, Room A Session Chair: Qing Yang, University of Rhode Island	Session 3B Systems and Architecture Short Papers 4:00 – 5:00, Room B Session Chair: Yiming Hu, University of Cincinnati	Session 3B Storage and P2P Short Papers 4:00 – 5:00, Room C Session Chair: Hong Jiang, University of Nebraska
➢ *A Comprehensive Evaluation of Routing Protocols for Ordinary and Large-Scale Wireless MANETs* Hossein Ashtiani, Shapour Alirezaee, Electrical Department, Zanjan University, Iran ➢ *Network Access Control Mechanism based on Locator/Identifier Split* Tu Rui, Su Jinshu, Chen Feng, School of Computer Science, National University of Defense Technology, China ➢ *Network of Multi-Agent Traffic Controllers* Ongard Sirisaengtaksin, Danil Safin, Department of Computer and Mathematical Sciences University of Houston-Downtown ➢ *Application of Residuation Theory in Network Calculus* Fan Baohua, Zhang Heying, Dou Wenhua, School of computer, National University of Defense Technology, China ➢ *Clustering and Constraints for Real-time Multicast* Wei Cheng, Shi Cheng, Chanle Wu, Jun Yue, Gang Ye,Lian He , Computer School, Wuhan University ➢ *A Case for a Packet Management in a Network Terminal* Yul Chu, University of Texas Pan American, Amit Uppal, TempleInLand Company ➢ *A Packet-based Anomaly Detection Model for Inter-domain Routing* Cao Huayang, Wang Miao, Wang Xiaoqiang, Zhu Peidong, School of Computer, National University of Defense Technology, China ➢ *Distributed k-Coverage Verification Algorithm*	➢ *Feedback-based Energy-aware Scheduling Algorithm for Hard Real-time Tasks* Dongsong Zhang, Shiyao Jin, Tong Wu, National Laboratory of Parallel and Distributed Processing, National University of Defense & Technology, China, Hua-wei Li, Zhenjiang Watercraft College, Jiangsu, China ➢ *An Enhanced HyperTransport Controller with Cache Coherence Support for Multiple-CMP* Huandong Wang, Dan Tang, Xiang Gao Yunji Che, Institute of Computing Technology, Chinese Academy of Sciences ➢ *A Parallel Memory System Model for Multi-core Processor* Mengxiao Liu, Feng Shi, Weixing Ji, Xing Pu, Jiaxin Li, Beijing Institute of Technology, China ➢ *Efficiency-Aware QoS DRAM Scheduler* Menghao Su, Xiang Gao, Yunji Chen, Qi Liu, Longbing Zhang, Institute of Computing Technology, Chinese Academy of Sciences ➢ *Stress Distributions on the Slider with Different Accommodation Coefficients* Jincai Chen, Gongye Zhou, Wei Sun, Libang Zhang, College of Computer Science and Technology, Wuhan National Laboratory for Optoelectronics, Huazhong University of Science and Technology, China ➢ *A Scalability Analysis of the Symmetric Multiprocessing Architecture in Multi-Core System* Yuan Qingbo, Bao Yungang, Chen Mingyu, Sun Ninghui, Institute of Computing Technology, China ➢ *Fast Way-Predicting Instruction Cache For Energy Efficiency and High Performance*	➢ *HMF: High-available Message-passing Framework for Cluster File System* Dong Yang, Zhuan Chen, Rongfeng Tang, Jin Xiong, Dan Meng, Institute of Computing Technology, Chinese Academy of Sciences, China ➢ *VSD: A Stackable Block Level Virtual Snapshot Device* Wen-wu Na, Xu-dong Zhu, Jin-ping Xu, Qing-zhong Bu, Xiao-ming Han, Jian-gang Zhang, Lu Xu, Institute of Computing Technology, Chinese Academy of Sciences, China ➢ *An Inexpensive, Effective and Reliable Solution to Enhance Scalability of a SAN File System* Chengxiang Si, Xingyu Shi, Xiaoxuan Meng , Jingliang Zhang , Junwei Zhang, Lu Xu Institute of Computing Technology, Chinese Academy of Science, China ➢ *TS-A: A Hierarchy Extended Cellular Automata Model for Complex Networking Storage System* Jincai Chen, Gongye Zhou, Lanlan Yuan College of Computer Science and Technology Huazhong University of Science and Technology, China ➢ *Change State Capture in Service Aware Storage* Zhaobin Liu, Information Science and Technology School, Dalian Maritime University, Dalian, China ➢ *BCD: To Achieve the Theoretical Optimum of Spatial Locality Based Cache Replacement Algorithm* Xudong Zhu, Jian Ke, Xiaoxuan

based on Localized Distance Information in WSNs
Xia Zhang, Cheng Wang, Digital Engineering & Simulation Research Center, Huazhong University of Science and Technology

➤ *Formal Specification of Intelligent Network Management model using Variable-weight Assorted-transition Colored Petri Net*
Feng Yu, School of Computer Science and Engineering, Southeast University, Nanjing, P. R. China

➤ *Unattended remote attestation delegation for grid computing*
Ge Cheng, School of Mathematics and Computational Science, Xiangtan University China , Jinju Long, Service Computing Technology and System Lab Cluster and Grid Computing Lab School of Computer Science and Technology, Huazhong University of Science and Technology, China

Cuiping Xu, Ge Zhang, Institute of Computing Technology, China Shouqing Hao, Graduate School of Chinese Academy of Sciences, Beijing, China

➤ *An Approach of Scalable MPEG-4 Video Bitstreams with Network Coding for P2P Swarming System*
Quan Gu, Jingli Zhou, School of Computer Science Huazhong University of Sci. & Tech., China, Kai Ouyang School of Computer Science, Wuhan Univ. of Sci. & Tech., China

➤ *Implementation of G.729 Codec Based on Mediastreamer Technology*
Liting Hu, Hezhi Lin, Lianfen Huang, Jianan Lin, Dept. of Electronic Engineering, Xiamen University

Meng Wenwu Na,Lu Xu , Institute of Computing Technology, Chinese Academy of Sciences, China

➤ *Research of P2P Routing Security based on Positive Detection Mechanism*
Chuiwei Lu, Zhitang Li, Huazhong University of Science & Technology

➤ *Transmission Scheduling in Data-Driven Peer-to-Peer Streaming towards Optimal Throughput*
Jiqing Wu, Yuxing Peng, Feng Liu, PDL of National University of Defense Technology, China

➤ *A Global Trust Model of P2P Network Based on Distance-Weighted recommendation*
Li Xue-Ming, Wang Jian-Ke, Zuo-Chuan, Fu Qiu-Lin, College of Computer Science, Chongqing University, Chongqing,China

Conference Banquet Keynote, Room: Hua Tian Jin Ge
From Data Collection to Knowledge Discovery
Professor Lionel M. Ni

Dr. Lionel M. Ni is Chair Professor in the Department of Computer Science and Engineering at the Hong Kong University of Science and Technology (HKUST), Distinguished Professor at Shanghai Jiao Tong University, and AF Professor at Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences. He is Chief Scientist of the China National 973 Program on wireless sensor networks, Director of HKUST MOE/MSRA IT Key Lab, and Director of HKUST Digital Life Research Center. Dr. Ni earned his Ph.D. degree in Electrical and Computer Engineering from Purdue University in 1980. A fellow of IEEE, Dr. Ni has chaired over 30 professional conferences, delivered over 30 keynote speeches, produced 37 Ph.D. students, won six best paper awards, and published three books. According to Google scholar, his research papers, covering high performance computing, high speed networking, distributed systems, mobile computing, and pervasive computing, have been cited for over 5000 times

Day 2: July 10, Friday

9:00 – 10:00 Keynote, Room Multi-Purpose Room
Challenges in Preserving Digital Data for the Long Term
Professor Ethan Miller

Dr. Ethan Miller is a professor of computer science at the University of California, Santa Cruz, where he is the Associate Director of the Storage Systems Research Center (SSRC). He received his ScB from Brown in 1987 and his PhD from UC Berkeley in 1995, and has been on the UC Santa Cruz faculty since 2000. He has written over 90 papers covering topics such as archival storage, file systems for high-end computing, metadata and information retrieval, file systems performance, secure file systems, and distributed systems. His current research projects, which are funded by the National Science Foundation, the Department of Energy via the Petascale Data Storage Institute, and industry support for the SSRC, include long-term archival storage systems, metadata, indexing, and security for petabyte-scale storage systems, and file systems for non-volatile RAM technologies. Prof. Miller's broader interests include file systems, parallel and distributed systems, operating systems, and computer security. In addition to research and teaching in storage systems and operating systems, Prof. Miller has worked with industry to help move research results into commercial use at companies such as Symantec and NetApp.

Session 4A Disks and File Systems 2:00 – 3:45 pm, Room A Session Chair: Shengli Yuan, University of Houston	Session 4B Network Analysis & Synchronization 2:00 – 3:45 pm, Room B Session Chair: Xu Zhiyong, Suffolk University	Session 4C Computer Architecture 2:00 – 3:45 pm, Room C Session Chair: Yongning Tang, Illinois State University
➢ *3DNBS: A Data De-duplication Disk-based Network Backup System* Tianming Yang, Dan Feng, Jingning Liu, Yaping Wan, Zhongying Niu,Yuchang Ke, Computer Department, Huazhong University of Science and Technology, Wuhan, China ➢ *A Storage Slab Allocator for Disk Storage Management in File System* Junwei Zhang, Jingling Zhang, Jiangang Zhang, Lu Xu, Xiaoming Han, Institute of Computing Technology, Chinese Academy of Sciences, China ➢ *Early Experiences with Write-Write Design of NFS over RDMA* Bo Li, Panyong Zhang, Zhigang Huo, Dan Meng, National Research Center for Intelligent Computing Systems, Institute of Computing Technology, Chinese Academy of Science, China ➢ *FAXtrac: Fast Extraction of Disk Layout*	➢ *Simulation Analysis of Probabilistic Timing Covert Channels* Yunchuan Guo, Institute of Computing Technology, Chinese Academy of Sciences, Yuan Zhou, National Computer Network Emergency Response Technical Team/Coordination Center of China, Lihua Yin, Chao Li, Li Guo, Institute of Computing Technology, Chinese Academy of Sciences, China ➢ *Synchronizing Parallel Data Streams via Cross-Stream Coding* Shaofeng Liu, Computer Science and Engineering Dept. , University of California San Diego, USA ➢ *A Trace Measurement and Analysis System for the Multi-Links CERNET Backbone* Cheng Guang, Southeast University, China, Yongning Tang, Illinois State University, USA Jiang Jiexin, Southeast University, China, Ding Wei, Southeast University, China ➢ *Reducing Communication*	➢ *The Design of Asynchronous Microprocessor Based on optimized NCL X design-flow* Gang Jin, Lei Wang, Zhiying Wang, School of Computer Science, National University of Defense Technology, China ➢ *Efficient Physical Design Methodology for Reducing Test Power Dissipation of Scan-Based Designs* Jun Xu, Xiangku Li, Institute of Computing Technology, Chinese Academy of Sciences, China ➢ *Hardware/Software Co-Simulation for Last Level Cache Exploration* Tao Wang, Qigang Wang, Dong Liu, Michael Liao, Kevin Wang, Lu Cao, Li Zhao, Ravi Iyer, Ramesh Illikkal, Liang Wang, Corporate Technology Group, John Du, Corporate Technology Group, Intel Corporation ➢ *Implementation of OpenVG Path and Paint Algorithms on Synchronous Data Triggered Architecture with Optimization*

Xiaowen Chu, Kai Ouyang, Department of Computer Science, Hong Kong Baptist University ➤ **MHPR: Multi-head Parallelism and Redundancy Disk Model** Yang Hu, Dan Feng, ShuPing Zhang, JingNing Liu, School of Computer Science & Huazhong University of science and technology. Key Laboratory of Data Storage System, Ministry of Education of China	***Overhead in Threshold Monitoring with Arithmetic Aggregation*** BingHeng Yan, Depei Qian, Yinan Ren, Yongjian Wang, Zhongzhi Luan, Sino-German Joint Software Institute, Beihang University, China	MA Sheng, WANG Zhiying, HUANG Libo, DAI Kui, School of Computer, National University of Defense Technology, China ➤ **Architecture Level Energy Modeling and Optimization for Multi-Ported Giga-Hz Physical Register File** Ge Zhang ,Xu Yang,Institute of Computing Technology, Chinese Academy of Sciences, China

Session 5A Storage Security
4:00 – 5:30, Room A
Session Chair: Andre Brinkmann, University of Paderborn, Germany

Session 5B High-end Systems and Modeling
4:00 – 5:30, Room B
Session Chair: Dan Feng, Huazhong University of Science and Technology

➤ ***TH-CDP: An Efficient Block Level Continuous Data Protection System***
Yonghong Sheng, Dongsheng Wang, JinYang He, DaPeng Ju, Tsinghua National Laboratory for Information Science and Technology, Tsinghua University, China

➤ ***Design and Implementation of Self-securing Disk***
Mengqi Zeng, Dawu Gu, Department of Computer Science and Engineering, Shanghai Jiao Tong University, China, Fangyong Hou, School of Computer, National University of Defense Technology, China
Yuanyuan Zhang, Tao Cheng, Department of Computer Science and Engineering, Shanghai Jiao Tong University, China

➤ ***Can We Improve Energy Efficiency of Secure Disk Systems without Modifying Security Mechanisms?***
Xiaojun Ruan, Adam Manzanares, Shu Yin, Auburn University, Auburn, USA
Mais Nijim , School of Computing University of Southern Mississippi Hattiesburg
Xiao Qin, Auburn University, Auburn, USA

➤ ***Identification and Authentication in Large-scale Storage Systems***
Zhongying Niu, Ke Zhou, College of Computer Science and Technology, Huazhong University of Science and Technology, Hong Jiang, Department of Computer Science and Engineering, University of Nebraska-Lincoln, Lincoln, USA, Tianming Yang, Wei Yan, College of Computer Science and Technology, Huazhong University of Science and Technology

➤ ***Update Maps – A new Abstraction for High-Throughput Batch Processing***
Steffen Viken, Valv°ag Dag Johansen, Department of Computer Science, University of Tromsø, Norway

➤ ***Gemini NI: an Integration of Two Network Interfaces***
Ninghui Sun,Xiaomin Li, Xuejun An, National Research Center for Intelligent Computing Systems, Institute of Computing Technology, Chinese Academy of Sciences, China

➤ ***An Array Computer for Low-and Intermediate-Level Image Processing***
Kaikun Dong, Yang Liu, Li Guo,Network Center,Harbin Institute of Technology at Weihai, China
Mingzeng HU, School of Computer Science and Technology, Harbin Institute of Technology, China

➤ ***Fault-tolerant Online Backup Service: Formal Modeling and Reasoning***
Hua Wang, Ke Zhou, Ling Yuan, School of Computer Science and Technology, Huazhong University of Science & Technology