2008 IEEE International Performance Computing and Communications Conference

(IPCCC)

Austin, Texas, USA
7 – 9 December 2008
# Table of Contents

## Session 1A: Wireless Sensor Networks I

**TIME: Time-based Index Management for Event Query Processing in Wireless Sensor Networks**
- Guilin Li (*Harbin Institute of Technology, CN*)
- Jianzhong Li (*Harbin Institute of Technology, CN*)
- Yingshu Li (*Georgia State University, US*)

**Divisible Load Scheduling in Wireless Sensor Networks with Information Utility**
- Kijeung Choi (*Stony Brook University, US*)
- Thomas G. Robertazzi (*University at Stony Brook, US*)

- Di Wu (*Hunan University, CN*)
- Lichun Bao (*University of California, Irvine, US*)
- Min Du (*Hunan University, CN*)
- Renfa Li (*Hunan University, CN*)

## Session 1B: Storage

**Distributed Energy-Efficient Scheduling for Data-Intensive Applications with Deadline Constraints on Data Grids**
- Cong Liu (*The University of North Carolina at Chapel Hill, US*)

**Progressive Parity-Based Hardening of Data Stores**
- Ahmed Amer (*University of Pittsburgh, US*)
- Jehan-Francois Paris (*University of Houston, US*)
- Darrell Long (*University of California at Santa Cruz, US*)
- Thomas Schwarz (*Santa Clara University, US*)

**An Adaptive Cache Management Using Dual LRU Stacks to Improve Buffer Cache Performance**
- Shenggang Wan (*Huazhong University of Science and Technology, CN*)
- Cao Qiang (*Huazhong University of Science and Technology, CN*)
- Xubin He (*Tennessee Technological University, US*)

## Session 1C: System Security

**Understanding Divide-Conquer-Scanning Worms**
- Yubin Li (*Florida International University, US*)
- Zesheng Chen (*Florida International University, US*)
- Chao Chen (*Indiana University Purdue University Fort Wayne, US*)
Session 2A: Wireless Sensor Networks II

Increasing Lifetime of Wireless Sensor Network Using Controllable Mobile Cluster Heads
Torsha Banerjee (University of Cincinnati, US)
Dharma Agrawal (University of Cincinnati, US)

TSS: An Energy Efficient Communication Scheme for Low Power Wireless Networks
Rabindranath Ghosh (St. Thomas' College, Kolkata, India, IN)
Koushik Sinha (Honeywell Technology Solutions Lab, IN)
Bhabani Sinha (Indian Statistical Institute, IN)

Coding-Aware Multi-path Routing in Multi-Hop Wireless Networks
Song Han (University of Texas at Austin, US)
Zifei Zhong (University of Texas, Austin, US)
Hongxing Li (Nanjing University, CN)
Guihai Chen (Nanjing University, CN)
Edward Chan (City University of Hong Kong, HK)
Aloysius Mok (University of Texas at Austin, US)

Session 2B: Internet Computing

A Network Connection Proxy to Enable Hosts to Sleep and Save Energy
Miguel Jimeno (University of South Florida, US)
Ken Christensen (University of South Florida, US)
Bruce Nordman (Lawrence Berkeley National Laboratory, US)

Cooperative Monitoring for Internet Data Centers
Kuai Xu (Arizona State University, US)
Feng Wang (Arizona State University, US)

A Transient Overload Generator for Web Servers
Paulo Farah (Faculdade Atual da Amazônia, BR)
Cristina Murta (Federal Center for Technological Education, BR)

Session 2C: Application Layer and Network Management I

An Evaluation of Java RMI/JavaSpaces and Ruby DRb/Rinda
Abhishek Jaiantilal (University of Colorado, US)
Yifei Jiang *(University of Colorado, US)*
Shivakant Mishra *(University of Colorado, US)*

**Performance Models for the Instance Pooling Mechanism of the JBoss Application Server**
Fábio Souza *(Universidade Federal de Pernambuco, BR)*
Roberto Arteiro *(Federal University of Pernambuco, BR)*
Nelson Rosa *(Federal University of Pernambuco, BR)*
Paulo Maciel *(Federal University of Pernambuco, BR)*

**Massively Parallel Network Coding on GPUs**
Xiaowen Chu *(Hong Kong Baptist University, HK)*

---

**Session 3A: Wireless Ad Hoc / Mesh Networks I**

**Delay and Capacity Optimization in Multi-radio Multi-channel Wireless Mesh Networks**
Weihuang Fu *(University of Cincinnati, US)*

**Location Authentication Methods for Network Access Control**
Lichun Bao *(University of California, Irvine, US)*

**Neighborhood Route Diffusion for Packet Salvaging in Networks with High Mobility**
Muhammad Quwaider *(Michigan State University, US)*
Jayanthi Rao *(Michigan State University, US)*
Subir Biswas *(Michigan State University, US)*

---

**Session 3B: Effective and SECURE Routing**

**Simple and Effective Adaptive Routing Algorithms in Multi-Layer Wormhole Networks**
Kyung Su *(University of Texas at San Antonio, US)*

**Towards Green Routers: Depth-Bounded Multi-Way Pipelining for Power-Efficient IP Lookup**
Weirong Jiang *(University of Southern California, US)*
Viktör Prasanna *(University of Southern California, US)*

**KAEF: An En-route Scheme of Filtering False Data in Wireless Sensor Networks**
Ting Yuan *(Fudan University, CN)*
Shiyong Zhang *(Fudan University, CN)*
Yiping Zhong *(Fudan University, CN)*
Jianqing Ma *(Fudan University, CN)*

---

**Session 4A: P2P and Distributed Networks**

**Analysis of Peer-to-Peer Traffic Using a Behavioural Method Based on Entropy**
João Gomes *(University of Beira Interior, PT)*
Session 4B: Application Layer and Network Management II

Laboratory Measurements and Verification of PSI/SI Transmission in DVB-H Systems
Jani Väre (Nokia, FI)
Jyrki Alamaunu (Senior Research Scientist, FI)
Harri Pekonen (Nokia, FI)

A Group-aware Service Discovery Scheme in Ubiquitous Environment using Service Assignment
Hankyul You (Information and Communications University, KR)

Competitive Analysis of Fairness in FIFO Buffer Management
Fei Li (George Mason University, US)

Session 5A: Wireless Sensor Networks III

Tiansi Hu (University of Connecticut, US)
Yunsi Fei (University of Connecticut, US)

UD-GEM: A Multi-Path Routing Algorithm for Wireless Sensor Networks
Qiang Ye (University of Prince Edward Island, CA)

An Efficient Key Distribution Scheme for Establishing Pairwise Keys with a Mobile Sink in Distributed Sensor Networks
Amar Rasheed (Texas A&M University, US)
Rabi Mahapatra (Texas A&M University, US)

Session 5B: Application Layer and Network Management III

Analysis on Probabilistic View Coverage for Image Sensing -- A Geometric Approach
Fulu Li (Massachusetts Institute of Technology, US)

Stability Analysis for Communication of Voice and Data Terminals with Packet
Reservation Multiple Access Protocol
Amirali Sharifi (Sterne Kessler Goldstein and Fox P.L.L.C., US)

Lightweight and Mutual Authentication Scheme for Mobile Radio Frequency Identification (mRFID) Systems
Muhammad Ikram (Ajou University, KR)
Md. Aminul Haque Chowdhury (Ajou University, KR)
Hassen Redwan (Ajou University, KR)
Ki-Hyung Kim (Ajou University, KR)

Session 6A: Potpourri

Directional Double Metric Routing in Wireless Mesh Network
Dapeng Wang (University of Science and Technology of China, CN)
Shoubao Yang (University of Science and Technology of China, CN)
Yun Hu (University of Science and Technology of China, CN)
Peng Zhang (University of Science and Technology of China, CN)

Joint Adaptive Redundancy and Partial Retransmission for Reliable Transmission in Wireless Sensor Networks
Hao Wen (Tsinghua University, CN)
Hongkun Yang (Tsinghua University, CN)

HSP2P: A High Scalability P2P Simulation Framework with Measured Realistic Network Layer Support
Hao Gong (Huawei Technologies Co., Ltd, CN)
Guangyu Shi (Huawei Technologies Co., Ltd, CN)
Youshui Long (Huawei Technologies Co., Ltd, CN)

Session 6B: Transport Layer and Optical Burst Switches

Towards a Queue Sensitive Transport Protocol
Ritesh Kumar (University of North Carolina at Chapel Hill, US)
Jasleen Kaur (University of North Carolina at Chapel Hill, US)

Modeling and Performance Evaluation of Optical Burst Switched Ring Networks with Efficient Adaptive Routings
Xingbo Gao (University of Central Florida, US)
Mostafa Bassiouni (University of Central Florida, US)

QoS Behavior of Optical Burst Switching under Multimedia Traffic: an Analytical Approach
Aresh Dadlani (University of Tehran, IR)
Ahmad Khonsari (University of Tehran, IR)
Ali Rajabi (University of Tehran, IR)
Mohammadreza Aghajani (Sharif University of Technology, IR)

Workshop: The 1st Workshop on Dynamic Spectrum Access and Cognitive
# Radio Networks

**Spectrum Handoff for Cognitive Radio Networks: Reactive-Sensing or Proactive-Sensing?**

Li-Chun Wang *(National Chiao Tung University, TW)*
Chung-Wei Wang *(National Chiao Tung University, TW)*

**Asynchronous Detection and Avoidance (DAA) Protocol for Interference Mitigation in Dynamic Spectrum Access**

Yu-Sheng Wang *(National Taiwan University, TW)*
Chun-Ting Chou *(National Taiwan University, TW)*

**Graph Theoretic Approach to QoS-Guaranteed Spectrum Allocation in Cognitive Radio Networks**

Sameer Swami *(University of Cincinnati, US)*
Chittabrata Ghosh *(University of Cincinnati, US)*
Rucha Dhekne *(University of Cincinnati, US)*
Dharma Agrawal *(University of Cincinnati, US)*
Ken Berman *(University of Cincinnati, US)*

**Spectral Sensing of Adaptive Frequency Hopping Signal for Cognitive Radio**

Kapil Jaiswal *(Indian Institute of Sciences, IN)*

**Universal Classifier Synchronizer Demodulator**

Qinqin Chen *(Virginia Polytechnic Institute and State University, US)*
Ying Wang *(Virginia Polytechnic Institute and State University, US)*
Charles Bostian *(Virginia Polytechnic Institute and State University, US)*

**Minimizing Energy Consumption Using Cognitive Radio**

An He *(Virginia Polytechnic Institute and State University, US)*
Xuetao Chen *(Virginia Polytechnic Institute and State University, US)*
Jeffrey Reed *(Virginia Polytechnic Institute and State University, US)*
Bill Tranter *(Virginia Polytechnic Institute and State University, US)*
Kyung Bae *(Virginia Polytechnic Institute and State University, US)*
Srikathyayani Srikanteswara *(Intel Corporation, US)*
Masoud Sajadieh *(Intel Corporation, US)*

---

**Workshop: The 1st IEEE International Workshop on Generation C Wireless Networks**

**Traffic Differentiating Queue For Enhancing AODV Performance in Real-Time Interactive applications**

Allaa R. Hilal *(German University in Cairo, EG)*
Amal El-Nahas *(German University in Cairo, EG)*
Ahmed Bashandy *(Cairo University, EG)*
Samir Shahin *(Cairo University, EG)*

**Discovering Resources in Tuple-Based Pervasive Systems using Resource-Aware Routing**

Saman Kolahdooz *(Iran University of Science and Technology, IR)*
Shahpour Rahmani *(Iran University of Science and Technology, IR)*
Mohsen Sharifi (Iran University of Science and Technology, IR)

Throughput Enhancement of Macro and Femto Networks By Frequency Reuse and Pilot Sensing
   Tae-Hwan Kim (Sungkyunkwan University, KR)
   Tae-Jin Lee (Sungkyunkwan University, KR)

RFID Reader Anti-collision Algorithm Using a Server and Mobile Readers Based on Conflict-Free Multiple Access
   Jun-Bong Eom (Sungkyunkwan University, KR)
   Tae-Jin Lee (Sungkyunkwan University, KR)

Automatic Generation of User's Profiles for Location-Based Adaptation of Multimedia Documents
   Fayçal M'hamed Bouyakoub (USTHB University, DZ)
   Abdelkader Belkhir (USTHB University, DZ)

Fuzzy Evaluation for Wireless Sensor Networks Based on Rough Set Theory
   Lun Zhang (Swiss Federal Institute of Technology, CH/Tongji University, CN)
   Yan Lu (Tongji University, CN)
   Lan Chen (Tongji University, CN)

Tuning Data Reporting and Sensing for Continuous Monitoring in Wireless Sensor Networks
   Teek P. Sharma (Indian Institute of Technology, IN)
   Ramesh C. Joshi (Indian Institute of Technology, IN)
   Manoj Misra (Indian Institute of Technology, IN)

Assessment Strategy with Markov Chain Utilized in Wireless Sensor Networks
   Lun Zhang (Swiss Federal Institute of Technology, CH/Tongji University, CN)
   Dongxiu Ou (Tongji University, CN)

Enhanced Scanning Scheme for Delay-Constrained Fast Handoff in IEEE 802.11 WLANs
   Yazan M. Allawi (Information and Communications University, KR)
   Min-Gon Kim (Information and Communications University, KR)
   Minho Kang (Information and Communications University, KR)

Exploring Load Balancing in Heterogeneous Networks by Rate Distribution
   Kuheli Louha (University of Cincinnati, US)
   Jung Hyun Jun (University of Cincinnati, US)
   Dharma P. Agrawal (University of Cincinnati, US)

Workshop: The 1st IEEE International Workshop on Network Security and Privacy

Practical Covert Channel Implementation through a Timed Mix-Firewall
   Richard Newman (University of Florida, US)
   Ira Moskowitz (Naval Research Lab., US)

Masquerading a Wired Covert Channel into a Wireless-like Channel
   Mina Guirguis (Texas State University, US)
   Jason Valdez (Texas State University, US)
A Proxy Agent for Small Network-Enabled Devices
Hong Qian (Gemalto, Inc.)
Karen Lu (Gemalto, Inc.)
Asad Ali (Gemalto, Inc.)

Threshold Proxy Re-Signature
Piyi Yang (Shanghai Jiao Tong University, US)
Zhenfu Cao (Shanghai Jiao Tong University, US)
Xiaolei Dong (Shanghai Jiao Tong University, US)

Support for Security and Privacy in SenSearch
Jyh-How Huang (University of Colorado, US)
John Black (University of Colorado, US)
Shivakant Mishra (University of Colorado, US)

Proxy Aided Key Pre-distribution Schemes for Sensor Networks
Mahalingam Ramkumar (Mississippi State University, US)

Subjective Audio Quality over Secure IEEE 802.11 Wireless Local Area Networks
Benjamin Ramsey (Air Force Institute of Technology, US)
Barry Mullins (Air Force Institute of Technology, US)

Activity-based Security Scheme for Ubiquitous Environments
Le Xuan Hung (KyungHee University, KR)

Workshop: The 1st IEEE International Workshop on Information and Data Assurance

Distributed Detection of Replica Cluster Attacks in Sensor Networks Using Sequential Analysis
Jun-Won Ho (The University of Texas at Arlington, US)

A Model to Use Denied Internet Traffic to Indirectly Discover Internal Network Security Problems
Chet Langin (Southern Illinois University Carbondale, US)
Hongbo Zhou (Southern Illinois University Carbondale, US)
Shahram Rahimi (Southern Illinois University Carbondale, US)

Adaptive Access Control Scheme Utilizing Context Awareness in Pervasive Computing Environments
Jung Hwan Choi (Sungkyunkwan University, KR)
Dong Hyun Kang (Sungkyunkwan University, KR)
Hyunsu Jang (Sungkyunkwan University, KR)
Young Ik Eom (Sungkyunkwan University, KR)

On the Formal Verification of a Cluster Based Key Management Protocol for Wireless Sensor Networks
Reiner Dojen (University of Limerick, IE)
Fan Zhang (University of Limerick, IE)
Tom Coffey (University of Limerick, IE)

The Scalability of Secure Lock
Mitigating Evil Twin Attacks in 802.11  513
Kevin Bauer (University of Colorado, US)
Harold Gonzales (University of Colorado, US)
Damon McCoy (University of Colorado, US)

Noise-Resistant Payload Anomaly Detection for Network Intrusion Detection Systems  517
Sun-il Kim (University of Alabama in Huntsville, US)
Nnamdi Nwanze (State University of New York at Binghamton, US)

Towards Mathematically Modeling the Anonymity Reasoning Ability of an Adversary  524
Douglas Kelly (Air Force Institute of Technology, US)

Author Index