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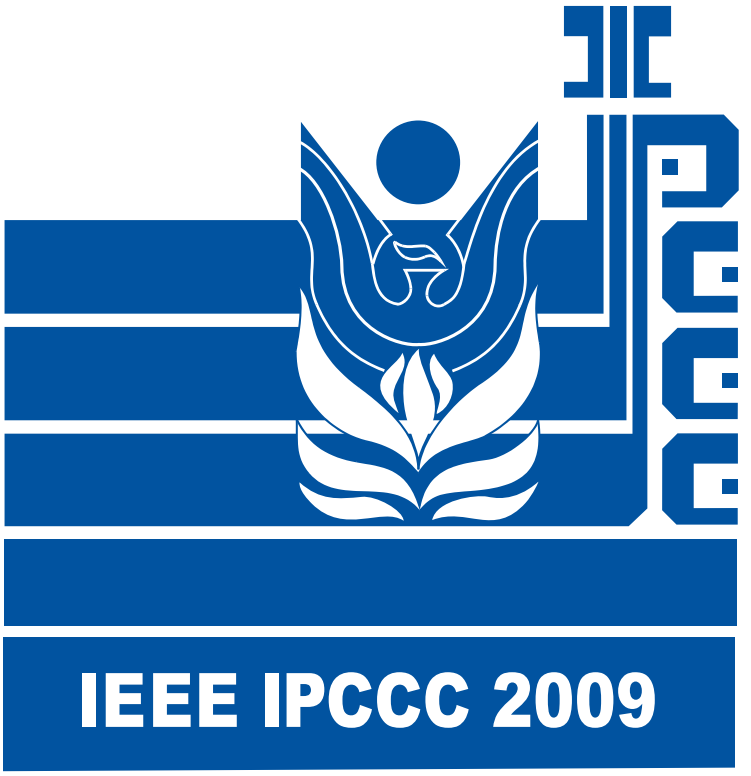
28TH

IEEE International Performance, Computing, and Communications Conference



Scottsdale Marriott,
Scotsdale, Arizona, U.S.A.

December 14 - 16, 2009

The International Performance, Computing, and Communications Conference is the premier IEEE conference presenting research in the performance of computer and communication systems. For more than two decades, IPCCC has been a research forum for academic, industrial, and government researchers.

IEEE Computer Society

IEEE

IEEE Technical Committee on Simulation (TCSIM)

Message from the General Co-Chairs

Welcome to the International Performance Computing and Communications Conference. In the past decades, IPCCC has been a major platform for disseminating new research findings in computing and communication areas. This year, IPCCC is celebrating its 28th birthday in the beautiful city of Phoenix. This year's conference features a balanced participation from the high performance computing community and the computer network community, with increased participation on computer and network security.

First let me give a quick overview of the conference. We have a highly packed two and half day program. We have nine conference paper sessions, and three workshop sessions featuring the hottest research topics in wireless networks and security. This year, we are honored to have three distinguished keynote speakers: Dr. Alhussein Abouzeid, a rising star in the area of computer networks and a program director in the CNS division of NSF, Dr. Larry Xue, a world-renowned researcher in the area of optimization and computer networks from Arizona State University, and Dr. Edward Sha, a highly regarded expert in parallel and distributed systems from UT-Dallas. Dr. Abouzeid will give an inspiring talk on "The Science and Engineering of Computer Networks" and direct us to the future research opportunities; Dr. Larry Xue, will talk about QoS routing from the optimization perspective; and Dr. Edward Sha will update us with his most recent research on parallel embedded system design.

It is my pleasure to acknowledge the tremendous effort from the organizing committee, whose dedication is indispensable to the success of the conference. The two technical program committee chairs, Dr. Kuai Xu and Sheng Zhong worked closely every step of the way, and engaged a group of dedicated and highly efficient program committee members; The publications chair, Dr. Chengkai Li checked every single paper to make sure the papers meet the IEEE standard, and worked around clock to ensure the conference proceedings are delivered on time; The publicity chair, Dr. Xiaoming Li, worked very hard to ensure that we receive a large number of submissions from a wide range of authors on a broad spectrum of topics. Jack Chen, Neil Nelson and Nasr Ullah volunteered their valuable time to help us again this year. They played important roles at different stages of the conference from local arrangement to finance. I would also like to thank the workshop chairs who actively solicited and carefully selected a group of forward-looking workshop papers.

Obviously, there would not be a conference without a technical program committee. Our gratitude goes to the members of the program committee who volunteered their valuable time to review papers. Their expert opinions are the key to the high quality program of our conference. I'd also like to thank the authors who submitted their work to our conference. Without their support, this conference would not be a success.

Finally, the organizing committee of IPCCC is grateful to the IEEE Computer Society for its sponsorship of the conference. We are thankful for the society's continued support of IPCCC.

On behalf of the conference committee, I extend you a warm welcome to the IPCCC conference! We hope that you will enjoy the technical program and the social opportunity being offered at this pleasant hotel in this beautiful city.

Warmest Regards,

Maggie Cheng and Youtao Zhang
General Co-Chairs, IPCCC 2009

Message from the Technical Program Co-chairs

Welcome to the 28th IEEE Performance Computing and Communications Conference (IPCCC 2009). On behalf of the technical program committee, we would like to thank all the authors for the high quality of their papers that are accepted either by the IPCCC main conference or by the workshops held in conjunction with the IPCCC.

This year we received 145 submissions for the main conference from authors in more than 30 countries all over the world. Although we had an extremely tight schedule, most papers received three or more peer reviews from our technical program committee and external reviewers. After a thorough analysis of the reviews returned, we accepted 43 papers for the main conference, with an acceptance rate of 29.7%. We must admit that we had a highly challenging job, because many of the submissions were of good quality and we had to select the very best papers for acceptance to the conference.

Therefore, here we would like to thank all the technical program committee members and external reviewers for their excellent services.

We wish to thank all those who contributed to the quality and success of IPCCC 2009. In particular, we thank all the members of the Technical Program Committee and the additional reviewers for doing the excellent job of reviewing the papers in an extremely short period of time. Special thanks to the General Chairs, Prof. Maggie Cheng and Prof. Youtao Zhang for their guidance and support in this process. We also thank Publication Chair Prof. Chengkai Li, Publicity Chair Prof. Xiaoming Li, Finance Chair Nasr Ullah, Registration Chair Jack Chen, Web Chair Neil Nelson, and the workshop organizers.

We once again welcome you all to IPCCC 2009. We hope you enjoy the technical program and the workshops and have a great time in Phoenix.

Sheng Zhong and Kuai Xu
Technical Program Co-chairs, IEEE IPCCC 2009

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Scottsdale Marriott Hotel Infomation

Scottsdale Marriott at McDowell Mountains
16770 North Perimeter Drive,
Scottsdale, Arizona 85260
Telephone: 480-502-3836
Fax: 480-502-0653

More details about the hotel can be found at their website:
http://www.marriottscottsdale.com/

IPCCC Facebook discussion group can be used to coordinate hotel sharing (network and connect with other attendees):

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IPCCC Schedule, Monday, December 14, 2009

Registration & Welcome Message: South Foyer, 8:00 - 8:30 a.m.

Keynote Address: Alhussein A. Abouzeid, Ph.D., On the Science and Engineering of Computer Networks

Valencia IV-VI, 8:30 - 9:30 a.m.

Session 1: 10:00 a.m. – 12:00 p.m.

Session 1A: Sensor Networks (Granada I)
Chair: Ronald P. Luijten (IBM Zurich Research Laboratory, CH)

A Universal Framework for Partial Coverage in Wireless Sensor Networks
Chinh Trung Vu (Georgia State University, US); Guantao Chen (Georgia State University, US); Yi Zhao (Georgia State University, US); Yingshu Li (Georgia State University, US)

ABC-MC: A Simple Multi-Channel Geographic Forwarding for Wireless Sensor Networks
Taekkyeun Lee (State University of New York at Buffalo, US); Chunming Qiao (State University of New York at Buffalo, US); Murat Demirbas (SUNY Buffalo, US); Jinhui Xu (State University of New York at Buffalo, US)

Static Worst-Case Energy and Lifetime Estimation of Wireless Sensor Networks
Yu Liu (Southern Illinois University Carbondale, US); Wei Zhang (Southern Illinois University Carbondale, US); Kemal Akkaya (Southern Illinois University Carbondale, US)

EDA: Event-oriented Data Aggregation in Sensor Networks
Ying Guo (Ocean University of China, CN); Feng Hong (Ocean University of China, CN); Zhongwen Guo (Ocean University of China, CN); Zongke Jin (Ocean University of China, CN); Yuan Feng (Ocean University of China, CN)

Real Time Clustering of Sensory Data in Wireless Sensor Networks
Longjiang Guo (Georgia State University, US); Chunyu Ai (Georgia State University, US); Xiaoming Wang (Shaanxi Normal University, CN); Zhipeng Cai (Mississippi State University, US); Yingshu Li (Georgia State University, US)

Session 1B: Transportation and Performance (Granada II)
Chair: Lizhe Wang (Rochester Institute of Technology, US)

Multiple TCP Connections Improve HTTP Throughput – Myth or Fact?
Preethi Natarajan (Cisco Systems Inc, US); Fred Baker (Cisco Systems Inc, US); Paul Amer (University of Delaware, US)

On Performance-Adaptive Flow Control For Large Data Transfer in High Speed Networks
Xukang Lu (University of Memphis, US); Qishi Wu (University of Memphis, US); Nageswara Rao (Oak Ridge National Laboratory, US); Zongmin Wang (Zhengzhou University, CN)

Pre-Congestion Notification Based Flow Management in MPLS-based DiffServ Networks
Mayutan Arumaithurai (University of Goettingen, DE) ; Ruediger Geib (University of Goettingen, DE); Rene Rex (University of Goettingen, DE); Xiaoming Fu (University of Goettingen, DE)

Towards Zero Loss for TCP in Wireless Networks
Jing Chen (Chinese Academy of Sciences, CN); Wei Tan (Baidu, Inc, CN); Lixiang Liu (Chinese Academy of Sciences, CN); Xiaohui Hu (Chinese Academy of Sciences, CN); Fanjiang Xu (Chinese Academy of Sciences, CN)

Saturation Aware TCP Throughput Prediction
Jia Zhou (Tsinghua University, CN) ; Fengyuan Ren (Tsinghua University, CN); Chuang Lin (Tsinghua University, CN)

Lunch: Alicante Patio (outdoors) / Valencia III (backup), 12:00 – 1:30

Keynote Address: Guoliang (Larry) Xue, Ph.D., Computing a Path Subject to Multiple Constraints: Advances and Challenges

Valencia IV-VI, 1:30 - 2:30 p.m.

Break: South Foyer, 2:30 p.m. - 3:00 p.m.

Session 2: 3:00 – 5:00 p.m.

Session 2A: Energy Efficiency (Granada I)
Chair: Lizhe Wang (Rochester Institute of Technology, US)

ECOS: An Energy-Efficient Cluster Storage System
Xiaojun Ruan (Auburn University, US); Shu Yin (Auburn University, US); Adam Manzanares (Auburn University, US); Jiong Xie (Auburn University, US); Zhiyang Ding (Auburn University, US); James Majors (Auburn University, US); Xiao Qin (Auburn University, US);

Improving Reliability of Energy- Efficient Storage System by Disks Swapping
Shu Yin (Auburn University, US); Xiaojun Ruan (Auburn University, US); Adam Manzanares (Auburn University, US); Zhiyang Ding (Auburn University, US); Jiong Xie (Auburn University, US); James Majors (Auburn University, US); Xiao Qin (Auburn University, US)

Performance Evaluation of Power Aware Routing Algorithms in Personal Networks
Javad Vazifehdan (Delft University of Technology, NL); Ramin Hekmat (Delft University of Technology, NL); R. Venkatesha Prasad (Delft University of Technology, NL); Ignas Niemegeers (Delft University of Technology, NL)

Virtual Center: a Characteristic of Minimum Power Broadcast Trees in Wireless Ad Hoc Networks
Manki Min (South Dakota State University, US); Bipin Neupane (South Dakota State Universisty, US)

Space-Efficient Predictive Block Management
David Essary (University of Pittsburgh, US); Ahmed Amer (University of California, Santa Cruz, US)

Session 2B: Performance in Computing and Communications (Granada II)
Chair: Wei Hao (Northern Kentucky University, US)

A User-centric Dynamic Cluster Partitioning Approach for HPC Service Optimization
Xiaorong Li (Institute of High Performance Computing, SG); Xiaorong Li (Institute of High Performance Computing, SG); Terence Hung (Institute of High Performance Computing, SG); Sharad Singhal (HP Labs, US)

Using Shared Parity Disks to Improve the Reliability of RAID Arrays
Jehan-Francois Paris (University of Houston, US); Ahmed Amer (Santa Clara University, US)

Optimization of Link Bandwidth for Parallel Communication Performance
Lydia Chen (IBM Zurich Research Laboratory, CH), Wolfgang Denzel (IBM Zurich Research Laboratory, CH), and Ronald Luijten (IBM Zurich Research Laboratory, CH)

Improving File Tree Traversal Performance by Scheduling I/O Operations in User Space
Carl Henrik Lunde (University of Oslo, NO); Håvard Espeland (University of Oslo, NO); Håkon K Stensland (Simula Research Laboratory, NO); Pål Halvorsen (Simula Research Laboratory, NO)

Achieving High Performance Web Applications by Service and Database Replications at Edge Servers
Wei Hao (Northern Kentucky University, US); Jicheng Fu (University of Central Oklahoma, US); I-Ling Yen (University of Texas at Dallas, US); Zhonghang Xia (Western Kentucky University)

Break: South Foyer, 5:00 - 5:30 p.m.

Reception: Valencia III, 5:30 - 7:30 p.m.

IPCCC Schedule, Tuesday, December 15, 2009

Registration : South Foyer, 8:00 – 8:30 a.m.

Keynote Address: Edwin Sha, Ph.D., Parallel Embedded Systems: Optimization and Challenges

Valencia IV-VI, 8:30 - 9:30 a.m.

Session 3: 10:00 a.m. – 12:00 p.m.

Session 3A: Wireless Networks (Granada I)

Chair: Preethi Natarajan (Cisco Systems Inc, US)

Towards Social-aware Routing in Dynamic Communication Networks
Thang N Dinh (University of Florida, US); Ying Xuan (University of Florida, US); My T. Thai (University of Florida, US)

Opportunistic Mechanisms for IEEE 802.11 Networks Using Directional Antennas
Tamer Nadeem (Siemens Corporate Research, Inc., US)

Efficient Multicast for Link-Heterogeneous Wireless Mesh Networks
Guokai Zeng (Michigan State University, US); Bo Wang (Michigan State University, US); Matt Mutka (Michigan State University, US); Li Xiao (Michigan State University, US); Eric Torng (Michigan State University, US)

Characterizing Deployment and Distribution of Self-powered Mesh Routers in Wireless Mesh Networks
Weihuang Fu (University of Cincinnati, US); Xiaoyuan Wang (University of Cincinnati, US); Dharma Agrawal (University of Cincinnati, US)

Analysis of the Impact of Swarm Mobility on Performance of Routing Protocols in MANETs
Jun Li (Communications Research Centre Canada, CA); Yifeng Zhou (Communications Research Centre Canada, CA); Louise Lamont (Communications Research Centre Canada, CA)

Session 3B: Security (Granada II)

Chair: Manki Min (South Dakota State University, US)

LWRM: A Lightweight Response Mechanism for TCG TOCTOU Attack
Xiaolin Chang (Beijing Jiaotong University, CN) ; Bin Xing (Beijing Jiaotong University, CN); Jiqiang Liu (Beijing Jiaotong University, CN); Jogesh K. Muppala (Hong Kong University of Science and Technology, HK)

Modeling Primary User Emulation Attacks and Defenses in Cognitive Radio Networks
Zesheng Chen (Indiana University - Purdue University Fort Wayne, US); Todor Cooklev (Indiana University - Purdue University Fort Wayne, US); Chao Chen (Indiana University - Purdue University Fort Wayne, US); Carlos A Pomalaza-Ráez (Indiana University - Purdue University Fort Wayne, US)

Mobile Sink Using Multiple Channels to Defend Against Wormhole Attacks in Wireless Sensor Networks
Amar A Rasheed (Texas A&M University, US); Rabi Mahapatra (Texas A&M University, US)

On Trigger Detection Against Reactive Jamming Attacks: A Clique-Independent Set Based Approach
Ying Xuan (University of Florida, US); Yilin Shen (University of Florida, US); Incheol Shin (University of Florida, US); My T. Thai (University of Florida, US)

Lunch: Alicante Patio (outdoors) / Valencia III (backup), 12:00 – 1:30

Session 4: 1:30 – 3:30

Session 4A: Optimization and Architecture (Granada I)

Chair: Manki Min (South Dakota State University, US)

GPU Support for Batch Oriented Workloads
Lauro B Costa (University of British Columbia, CA); Samer Al-Kiswany (University of British Columbia, CA); Matei Ripeanu (University of British Columbia, CA)

Spotlight - A Low Complexity Highly Accurate Profile-based Branch Predictor
Santhosh Verma (Louisiana State University, US); Benjamin Maderazo (Louisiana State University, US); David M. Koppelman (Louisiana State University, US)

Iterative Layer-Based Raytracing on CUDA
Alejandro Segovia (University of Delaware, US); Xiaoming Li (University of Delaware, US); Guang Gao (University of Delaware, US)

Context-aware Code Optimization
Murat Bolat (University of Delaware, US); Xiaoming Li (University of Delaware, US)

Session 4B: Location, Efficiency and Reliability (Granada II)

Chair: Jun Li (Communications Research Centre Canada, CA)

Efficient Symmetric Comparison-Based Self-Diagnosis Using Backpropagation Artificial Neural Networks
Mourad Elhadef (Abu Dhabi University, UAE); Amiya Nayak (University of Ottawa, CA)

A Pragmatic Approach to Location-Aware Service Organization and Discovery
Jian Zhu (National University of Singapore, SG); Mohammad Oliya (National University of Singapore, SG); Hung Keng Pung (National University of Singapore, SG)

Low Cost Indoor Location Management System Using Infrared Leds and Wii Remote Controller
Baris Tas (University of Texas at San Antonio, US); Nihat Altiparmak (University of Texas at San Antonio, US); Ali Saman Tosun (University of Texas at San Antonio, US)

Thermal Aware Workload Scheduling with Backfilling for Green Data Centers
Lizhe Wang (Rochester Institute of Technology, US); Gregor von Laszewski (Indiana University at Bloomington, US); Jai Dayal (Rochester Institute of Technology, US); Thomas R. Furlani (State University of New York at Buffalo, US)

A-MAC: Efficient Medium Access for Cluster-based Wireless Sensor Networks
Xinhua Yang (Colorado School of Mines, US); Tracy Camp (Colorado School of Mines, US)

Break: South Foyer, 3:30 p.m. - 4:00 p.m.

Session 5: 4:00 – 6:00 p.m.

Session 5A: Distributed Systems (Granada I)

Chair: Jun Li (Communications Research Centre Canada, CA)

Finding Correlated Heavy-Hitters Over Data Streams
Bibudh Lahiri (Iowa State University, US); Srikanta Tirthapura (Iowa State University, US)

Caching Techniques for XML Message Filtering
Yang Cao (Carleton University, CA); Shikharesh Majumdar (Carleton University, CA); Chung-Horng Lung (Carleton University, CA)

Towards Health of Replication in Large-Scale P2P-VoD Systems
Haitao Li (Tsinghua University, CN); Xu Ke (Tsinghua University, CN); James Seng (PPLive R&D, CN); Po Hu (China Academy of Telecommunication Research, CN)

Hotspot Prediction and Cache in Distributed Stream-processing Storage Systems
Chentao Wu (Huazhong University of Science and Technology, CN); Xubin He (Tennessee Technological University, US); Shenggang Wan (Huazhong University of Science and Technology, CN); Qiang Cao (Huazhong University of Science and Technology, CN); Changsheng Xie (Huazhong University of Science and Technology., CN)

Network Caching for Chip Multiprocessors
Jinglei Wang (Tsinghua University, CN); Yibo Xue (Tsinghua university, CN); Haixia Wang (Tsinghua University, CN); Dongsheng Wang (Tsinghua University, CN)

Session 5B: Broadband Wireless and Cognitive Radio Networks Workshop, Part I (Granada II)

Chair: Dave Cavalcanti (Philips Research, North America)

A Study of Throughput for Iu-CS and Iu-PS Interface in UMTS Network
Ye Ouyang (Stevens Institute of Technology, US); M. Hosein Fallah (Stevens Institute of Technology, US)

An Adaptive Polling Algorithm with Differentiation Strategy in IEEE 802.16 Multi-hop Networks with IEEE 802.11e WLANs
Myounghwan Lee (Georgia Institute of Technology,US); John A. Copeland (Georgia Institute of Technology,US)

Performance Comparison of Guard Channel Admission Control Schemes for IEEE 802.16 System with Various Turbo Code FEC Schemes
Adam Flizikowski (University of Technology and Life Sciences, PL); Rafal Kozik (University of Technology and Life Sciences, PL); Mateusz Majewski (ITTI Ltd, PL); Marcin Przybyszewski (ITTI Ltd, PL)

Applying Scheduling Policies to Improve Quality of Experience in Voice Over IP
Lambros Lambrinos (Cyprus University of Technology, CY); Constantinos Djouvas (Cyprus University of Technology, CY)

A Study of Throughput for Nb, Mc and Nc Interface in UMTS Network
Ye Ouyang (Stevens Institute of Technology, US); M. Hosein Fallah (Stevens Institute of Technology, US)

IPCCC Schedule, Wednesday, December 16, 2009

Registration: South Foyer, 8:00 – 9:00 a.m.

Session 6: 9:00 – 11:00 a.m.

Session 6A: Data and Information Assurance Workshop (Granada I)
Chair: Anurag Gupta (Google, Inc.)

Flow-based TCP Connection Analysis
Tobias Limmer (University of Erlangen, DE); Falko Dressler (University of Erlangen, DE)

Predicting Tor Path Compromise by Exit Port
Kevin S Bauer (University of Colorado, US); Dirk Grunwald (University of Colorado, US); Douglas Sicker (University of Colorado, US)

Multiscale Analysis and Prediction of Network Traffic
Hong (Hannah) Zhao (Fairleigh Dickinson University, US)

Finding and Extracting Crypto Routines from Malware
Felix Leder (University of Bonn, DE); Peter Martini (University of Bonn, DE); André Wichmann (University of Bonn, DE)

Network Measurement Based Redundancy Model and Maintenance in Dynamic P2P Storage Systems
Guangping Xu (Tianjin University of Technology,CN); Hua Zhang (Tianjin University of Technology,CN); Jing Liu (Nankai University, CN), Gang Wang (Nankai University, CN), Xiaoguang Liu (Nankai University, CN)

A Goal Programming Approach for the Joint Optimization of Energy Consumption and Response Time in Computational Grids
Samee U. Khan (North Dakota State University, US)

Session 6B: Broadband Wireless and Cognitive Radio Networks Workshop, Part II (Granada II)
Chair: Ismael Gutierrez (Samsung, UK)

System Level Evaluation for WiMAX IEEE 802.16m
Alain Abdel-Majid Mourad (Samsung Electronics Research Institute, UK); Ismael Gutierrez (Samsung Electronics Research Institute, UK)

Joint Precoder and Power Adaptation for Cognitive Radios in Interference Systems
Danda B. Rawat (Old Dominion University, US); Dimitrie C. Popescu (Old Dominion University, US)

Evolutionary Algorithms for Radio Resource Management in Cognitive Radio Network
Muhammad Waheed (Beijing University of Posts and Telecommunications, Beijing China, CN); Anni Cai (Beijing University of Posts and Telecommunications, CN)

Are Cognitive Radios Energy Efficient? A Study of the Wireless LAN Scenario
Vinod Namboodiri (Wichita State University, US)

End of IPCCC schedule

Workshops 2009 Information

BWNCP 2009

Broadband wireless sits at the confluence of the most remarkable growth stories of the telecommunications industry in recent years. Both wireless and broadband have on their own enjoyed rapid mass-market adoption. Broadband wireless is about bringing the broadband experience to a wireless context, which offers users certain unique benefits and convenience.

Emerging technologies of broadband wireless and cellular like Mobile WiMAX based on IEEE 802.16e standard, long-term evolution (LTE) networks, HSDP, WiRAN, etc are expected to not only compete with the broadband wireless market share in urban areas with DSL, cable, and optical fibers, but also threaten the hotspot based WiFi and even the voice-oriented cellular wireless market. The success of these services depends on the way network operators, wireless access equipment vendors and service providers will deal with the stringent constraints imposed by the underlying wireless architecture. Seamless and ubiquitous coverage and QoS provisioning are the crucial points to face.

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DSA-CRN

New policies and regulatory rules for more efficient allocation and utilization of spectrum have been at the center of current discussions involving governments, industry and academia. For example, on November 14 2008, the US Federal Communications Commission (FCC) adopted the rules that allow unlicensed transmitters to operate in TV bands on a secondary basis. Dynamic Spectrum Access (DSA) and Cognitive Radio Networks (CRNs) are considered as the two key technologies that will enable flexible, efficient and reliable spectrum use by adapting radio operating characteristics to the real-time conditions of the environment. This workshop will focus on key research challenges related to the dynamic spectrum access paradigm and cognitive radio networks, and it is intended to be a forum for collaboration across multiple communities, ranging from academic to government to industry.

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WIDA 2009

Increasing reliance on the Internet for business and commercial purposes and the global availability of information has resulted in a whole suit of problems that are rooted in information assurance. As more and more complex systems evolve, the need for security and data assurance grows even more. Large corporations and research institutions regularly come up with solutions to counter malicious and non-malicious, external and internal threats. However, the field of information assurance is such that new threats evolve on a regular basis and continuous research and innovation is critical to stem the threats that continually arise. Information Assurance can then be defined as the protection and defense of information systems so as to ensure the authenticity, availability, confidentiality, integrity, and non-repudiation of critical data and user credentials. Authentication is a direct approach to information assurance, where the external party is asked to prove its authenticity. This can be achieved by encryption, certification or some previously agreed upon protocol. Confidentiality and integrity cover the areas of data protection by directly modifying the data using encryption or keeping the data in secured backed-up locations. The goal of non-repudiation states that an entity that has proven its identity should also be held responsible for its actions.

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Ye Xia, University of Florida
Yingying Chen, Stevens Institute of Technology
Yu Chen, State University of New York, Binghamton
Zhen Jiang, West Chester University of Pennsylvania

KEYNOTE SPEAKERS

MONDAY, DECEMBER 14, 8:30 A.M. - 9:30 A.M

ALHUSSEIN A. ABOUZEID, PH.D., ON THE SCIENCE AND ENGINEERING OF COMPUTER NETWORKS

Dr. Abouzeid is currently program director in the Computer and Network Systems division of the National Science Foundation. He is also associate professor, on leave, with the department of Electrical, Computer, and Systems Engineering at Rensselaer Polytechnic Institute and Deputy Director of the Center for Pervasive Computing and Networking, which he co-founded. He received his Ph.D. in Electrical Engineering from University of Washington, Seattle, in 2001, and has been with RPI since then. His current research interest is variable topology networks, which includes wireless ad-hoc and sensor networks, delay and disruption-tolerant networks, and peer-to-peer overlay networks. The research focuses on protocols for coping with, and sometimes leveraging, the various aspects of variability in computer networks, including mobility, wireless channel variation, and heterogeneity. He received an NSF CAREER award in 2006 for his project "Multiple-Layer Modeling and Design of Wireless Ad Hoc Networks".

MONDAY , DECEMBER 14, 1:30 P.M. - 2:30 P.M.

GUOLIANG (LARRY) XUE, PH.D., COMPUTING A PATH SUBJECT TO MULTIPLE CONSTRAINTS: ADVANCES AND CHALLENGES

Abstract: A fundamental problem in quality of service (QoS) routing is to find a path between a specified source node and a destination node that satisfies K additive QoS constraints, where K>=2 is a constant. This problem is known to be NP-hard, and has been extensively studied for the case of K=2, where the two QoS parameters denote cost and delay, respectively. Existing approaches to this problem can generally be divided into two classes: simple heuristics that does not provide performance guarantees, or sophisticated approximation algorithms that provide worst case performance guarantees but are complicated for implementation. In this talk, we will present some recent advances for solving the general problem with K>=2 QoS constraints. These include faster (1+epsilon)-approximation algorithms, and a class of K-approximation algorithms which run as fast as a well-known shortest path algorithm. We will also look at the challenges and opportunities along this line of research.

Speaker Bio: Guoliang (Larry) Xue is a Professor of Computer Science and Engineering at Arizona State University. He received the PhD degree in Computer Science from the University of Minnesota in 1991. He has held previous positions as Assistant/Associate Professor of Computer Science at the University of Vermont. His research interests include quality of service routing, resource allocation in wireless networks, and relay node placement in wireless sensor networks. He currently serves on the editorial boards of Computer Networks, IEEE Transactions on Wireless Communications, and IEEE Network Magazine. He is a TPC co-Chair of IPCCC2003, and a TPC co-Chair of INFOCOM2010. More information can be found at: optimization.asu.edu/~xue.

TUESDAY , DECEMBER 15, 8:30 A.M. - 9:30 A.M

EDWIN SHA, PH.D., PARALLEL EMBEDDED SYSTEMS: OPTIMIZATION AND CHALLENGES

Abstract: Computing systems are now moving toward “parallel” rapidly such as VLIW, multi-core, and multi-processor systems. However, software designers are not yet ready for this change. People still wonder how to maximize parallelism of applications in order to fully use the resources, how to reduce the memory overhead that is becoming the most serious bottleneck for system performance, how to use hardware/software to secure a system, and how to reduce power consumption. There are many optimization problems in this area that deserve to conduct serious research, in particular, how to automatically parallelize loops and how to reduce the memory overhead. This talk will present some of our research results developed in these years for various types of optimization problems in security, bus minimization, timing and parallelization optimization, code size, memory overhead and power consumption minimization, etc. Many of our techniques give the best known results available in literatures.

Speaker Bio: Dr. Edwin Sha received his Masters and Ph.D. degree from the Department of Computer Science, Princeton University, USA in 1991 and 1992, respectively. From August 1992 to August 2000, he was a faculty member in the Department of Computer Science and Engineering at University of Notre Dame, USA, and served as the Associate Chair since 1995. Since 2000, he has been a tenured full professor in the Department of Computer Science at the University of Texas at Dallas (UTD).

He has published more than 260 research papers including more than 70 journal articles. He has been serving as editor for many premier journals including several IEEE Transactions, and as program committee members and Chairs in numerous international conferences. He received the Oak Ridge Association Junior Faculty Award, NSF CAREER Award, Notre Dame CSE Teaching Award, Microsoft Trustworthy Computing Curriculum Award, NSFC Overseas Distinguished Young Scholar, and Chinese ChangJiang. Scholar Honorary Chair Professor. He served as the conference chairs for many international conferences such as GLSVLSI, PDCS 2000, PDCS 2001, SecUbiq 2005, PDES 2005, EUC 2006, ESO 2006, EUC 2007, ESO 2007, SEC 2008, EM-Com 2009, etc. His web page can be found at: www.utdallas.edu/~edsha

Preliminary Call for Papers and Participation

29th IEEE International Performance, Computing, and Communications Conference

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Albuquerque, New Mexico

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The International Performance, Computing, and Communications Conference is the premier IEEE conference presenting research in the performance of computer and communication systems.

For almost three decades, IPCCC has been a research forum for academic, industrial, and government researchers.

Hot Topics For IPCCC 2010

We encourage submission of high-quality papers reporting original work in both theoretical and experimental research areas. Topics of interest include, but are not limited to, the following:

- Mobile and Networked Applications
- Hybrid and Ad Hoc Networking
- Sensor Network Protocols and Applications
- Performance Evaluation
- Performance of Web Servers
- Performance of Workloads
- High-Performance Computing
- Power-Aware Design
- Grid Computing
- Embedded Systems
- Storage Systems
- Network Protocols
- Network Information Assurance
- Network Computing

Submissions Procedures

Submission instructions and procedures are available at the IPCCC web site.at: www.ipccc.org

All papers will be reviewed by the Program Committee. They will be judged with respect to their quality, originality, and relevance. Accepted papers will be published in the conference proceedings, conditional upon the author's advance registration. Awards will be given for the best paper.

Questions regarding the policies and procedures can be sent to the IEEE IPCCC 2010 General Chairs.

In addition, proposals for panel sessions and workshops are welcome. Please contact the General Chair, listed above, for details.

- Panel sessions: on topics of timely importance.
- Workshops: on relevant topics, half or full-day.

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IPCCC 2010 Call for Papers

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