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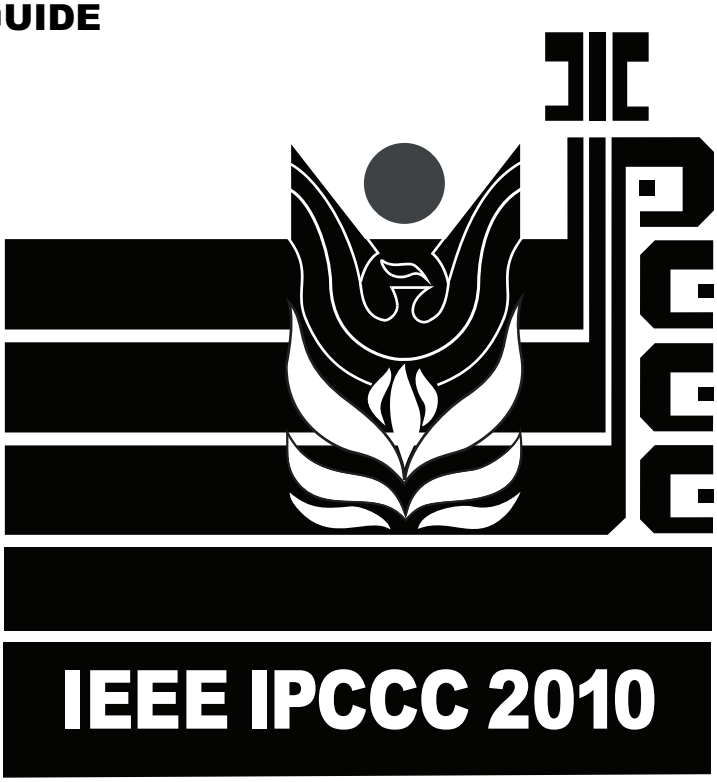
29TH IEEE INTERNATIONAL PERFORMANCE, COMPUTING AND COMMUNICATIONS CONFERENCE

PROGRAM GUIDE



ALBUQUERQUE MARRIOTT, ALBUQUERQUE, NEW MEXICO

DECEMBER 9 - 11, 2010

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

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IEEE TECHNICAL COMMITTEE ON SIMULATION (TCSIM)

Message from the General Chair

It is our great pleasure to welcome you to the 2010 IEEE International Performance, Computing, and Communications Conference (IPCCC 2010). IPCCC has always provided a unique opportunity for people from academia, industry and government to exchange exciting research results in performance, computers, and communications. We are grateful to the IEEE Computer Society for its continuing sponsorship of this forum.

This year's program is a full and exciting single-track technical session complemented by a workshop track: Workshop on New Applications and Performance of Cognitive Radio and Resource-aware Communication Networks.

We would like to thank our excellent technical program co-chairs, technical program committee members and referees whose careful work led to such a high-quality program. We would also like to thank the organizing committee members for the countless hours spent organizing all aspects of the conference. It has been a great pleasure to work with such enthusiastic and selfless individuals.

We are very excited by the new venue this year: Albuquerque, New Mexico! New Mexico is called **The Land of Enchantment** for a reason. Thanks to you for joining us for this exciting conference and see for yourself why this is so.

We welcome to Albuquerque, and thank you for your support of IPCCC.

Warmest Regards,

Richard L. Oliver
General Chair, IPCCC 2010

Message from the Technical Program Co-chairs

It is our great pleasure to welcome you to Albuquerque, New Mexico for the 29th IEEE Performance Computing and Communications Conference (IPCCC 2010). On behalf of the technical program committee, we would like to thank all the authors for the high quality papers that are accepted by the IPCCC main conference and by the workshop held in conjunction with the conference.

This year we received 127 submissions for the main conference, out of which 36 were selected for publication with an acceptance rate of 28.35 percent. Although we had an extremely tight schedule, most papers received three or more peer reviews from 68 dedicated technical program committee members and external reviewers. We must admit that we had a highly challenging job of selecting the very best papers for acceptance to the conference because many of the submissions were competitive and of good quality. Therefore, our thanks go to all the technical program committee members and external reviewers who made the selection of the final program possible.

We wish to thank all those who contributed to the quality and success of IPCCC 2010. We particularly appreciate the guidance and support from General Chair Prof. Richard Oliver and Vice General Chair Prof. Sheng Zhong. We also thank Publication Chair Prof. Yu Wang, Publicity Chair Prof. Satyajayant Misra, Finance Chair Nasr Ullah, Registration Chair Jack Chen, Web Chair Neil Nelson, Workshop Chairs Dr. Dave Cavalcanti and Prof. Kaushik Chowdhury and Student Poster Chair Prof. Song Fu.

We once again welcome you all to IPCCC 2010. We hope you enjoy the technical program and have a great time in Albuquerque.

Kuai Xu and Chengkai Li
Technical Program Co-chairs, IEEE IPCCC 2010

Contents

Albuquerque Marriott Hotel Information

2101 Louisiana Boulevard NE
Albuquerque, New Mexico 87110, USA
Phone (505)-881-6800
Toll-free: 1-800-228-9290
Fax (505)-888-2982

More details about the hotel can be found at their website:
http://www.marriott.com/hotels/travel/abqnm-albuquerque-marriott/

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

If you have any problems with your room reservation dates or rates, please feel free to communicate directly with Catherine Hatcher, Sales Manager, Albuquerque Marriott. Let her know that you are with IPCCC and she will help get any problem resolved. Her contact details are below:
Direct: (505).837.6674
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Email: Catherine.Hatcher@marriottsales.com

IPCCC 2010

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IPCCC Schedule, Thursday, December 9, 2010

Registration & Welcome Message: Cimarron/La Cruces, 8:00 - 8:30 a.m.

Keynote Address: 8:30 - 9:45 a.m.

Weighting and Matching: on Optimizing Resource Allocation for Multi channel Relaying, Professor Ben Liang, Ph.D., University of Toronto

Session 1A/1B: 10:00 a.m. – Noon

Session 1A: Network Security (Cimarron)
Chair: Manki Min (South Dakota State University)

Compression-based Web Anomaly Detection Model
Jun Ma (McGill University, Canada); Xue Liu (McGill University, Canada); Qixin Wang (Hong Kong Polytechnic University, Hong Kong); Guanzhong Dai (Northwestern Polytechnic University)

From Nowhere to Somewhere: Protecting End-to-End Location Privacy in Wireless Sensor Networks
Honglong Chen (Hong Kong Polytechnic University, Hong Kong); Wei Lou (Hong Kong Polytechnic University, Hong Kong))

RAPiD: An Indirect Rogue Access Points Detection System
Guangzhi Qu (Oakland University, USA); Michael M. Nefcy (Oakland University, USA)

Towards Dynamic Self-Tuning for Intrusion Detection Systems
Sun-il Kim (University of Alaska Anchorage, USA); Nnamdi Nwanze (State University of New York at Binghamton, USA); Jasen Kintner (University of Alaska Anchorage, USA)

1569340597 Secure Localization Against Wormhole Attacks Using Conflicting Sets
Honglong Chen (Hong Kong Polytechnic University, Hong Kong); Wei Lou (Hong Kong Polytechnic University, Hong Kong); Zhi Wang (Zhejiang University, P.R. China)

Session 1B: CR-RAN Workshop (La Cruces)
Chair: Marco Di Felice (University of Bologna, Italy)

Tuning ZRP Framework for CR Networks and MANETs
Mankanala SreeRangaRaju (Bangalore Institute of Technology,VTU,Belgaum, India); Jitendranath Mungara (BTL Institute of Tech & Mgt, India)

Effects of channel SNR in Mobile Cognitive Radios and Coexisting Deployment of Cognitive Wireless Sensor Networks
Vasanth Iyer (International Institute of Information Technology, India); S. Sitharama Iyengar (Louisiana State University, USA); Garmiela Rama Murthy (International Institute of Information Technology, India); N. Parameswaran (The University of New South Wales, Australia); Dhananjay Singh (National Institute for Mathematical Sciences, South Korea); Mandalika B. Srinivas (Brila Institute of Technology & Science, India)

Traffic Eavesdropping Based Scheme to Deliver Time-Sensitive Data in Sensor Networks
Khaled Daabaj (Murdoch University, Australia); Michael Dixon (Murdoch University, Australia); Terry Koziniec (Murdoch University, Australia);

Performance Evaluation of CDMA Packet Networks in Nakagami Fading
Jen-Shiun Chen (Southern Illinois University, Edwardsville, USA)

Belief-free Equilibrium of Packet Forwarding Game in Ad Hoc Networks under Imperfect Monitoring
Charles A Kamhoua; Niki Pissinou; Alan Busovaca (Florida International University, USA); Kia Makki (Technological University of America (TUA), USA)

Lunch: Acoma, Noon – 1:30 p.m.

Session 2: 1:30 – 3:30 p.m.

Session 2: Mobile Ad Hoc and Mesh Networks (Cimarron/Las Cruces)
Chair: Jehan-Francois Paris (University of Houston, USA)

Cognitive Multi-Radio Mesh Networks on ISM Bands: A Cross-Layer Architecture
Wooseong Kim (University of California at Los Angeles, USA); Andreas J. Kassler (Karlstad University, Sweden); Marco Di Felice (University of Bologna, Italy); Mario Gerla (University of California at Los Angeles, USA)

A Non-Uniform Node Deployment Approach for Event Detection Sensor Networks
Xiaoguang Zhang (Bond University, Australia); Zheng Da Wu (Bond University, Australia)

EASARD: Towards an efficient Energy-Aware Service And Route Discovery scheme in MANET
Fatma Outay (University Paris-Sud 11, France); Veronique Veque (University Paris-Sud 11, France); Ridha Bouallegue (SUP'COM, 6'Tel Laboratory, Tunisia)

Incremental Minimality: A Property of Optimal Solutions for the Minimum Power Broadcast Tree Problem in Wireless Ad Hoc Networks
Manki Min (South Dakota State University, USA); Bipin Neupane (South Dakota State University, USA)

Sender - Receiver Cooperation and Buffer Observation for Fine-grained Adaptive Transmission of Video over Mobile Ad hoc Networks
Pham Van Tien (Hanoi University of Technology, Vietnam); Nguyen Thuy Chi (Hanoi University of Technology, Vietnam); Nguyen Manh Thiep (Hanoi University of Technology, Vietnam) ; Nguyen Van Tuyen (Hanoi University of Technology, Vietnam); Dang Van Tuan (Hanoi University of Technology, Vietnam); Nguyen Thanh Thuy (Hanoi University of Technology, Vietnam); Nguyen Thi Thu Trang (Hanoi University of Technology, Vietnam)

Break: 3:30 - 4:00 p.m.

Session 3: 4:00 – 6:00 p.m.

Session 3: Parallel and Distributed Systems (Cimarron/Las Cruces)
Chair: Manki Min (South Dakota State University, USA)

auto-AID: A Data Mining Framework for Autonomic Anomaly Identification in Networked Computer Systems
Qiang Guan (University of North Texas, USA); Song Fu (University of North Texas, USA)

Evaluation of a Scalable and Distributed Mobile Device Video Recording Approach for Accessible Presentations
Raja S. Kushalnagar (Rochester Institute of Technology, USA); Jehan-Francois Paris (University of Houston, USA)

Reproducing Non-deterministic Bugs with Lightweight Recording in Production Environments
Nan Wang (Chinese Academy of Sciences, P.R. China); Jizhong Han (Chinese Academy of Sciences, P.R. China); Haiping Fu (Chinese Academy of Sciences, P.R. China); Xubin He (Virginia Commonwealth University, USA); Jinyun Fang (Chinese Academy of Sciences, P.R. China)

Patient-centric Hurricane Evacuation Management System
Arny Ambrose (Florida Atlantic University, USA); Mihaela Cardei (Florida Atlantic University, USA); Ionut Cardei (Florida Atlantic University, USA)

Optimized Information Discovery using Self-adapting Indices over Distributed Hash Tables
Faraz Memon (Universitat Stuttgart, Germany); Daniel Tiebler (Universitat Stuttgart, Germany); Frank Durr (Universitat Stuttgart, Germany); Kurt Rothermel (Universitat Stuttgart, Germany)

IPCCC Schedule, Friday, December 10, 2010

Registration : Cimarron – 10:00 a.m.

Session 4: 10:00 a.m. – Noon

Session 4: Wireless Networks (Cimarron/Las Cruces)
Chair: Feng Wang (Arizona State University West, USA)

ARM: an Asynchronous Receiver-initiated Multi-channel MAC Protocol with Duty Cycling for WSNs
Jinbao Li (Heilongjiang University, P.R. China); Desheng Zhang (Heilongjiang University, P.R. China); Longjiang Guo (Georgia State University, USA); Shouling Ji (Georgia State University, USA); Yingshu Li (Georgia State University, USA)

A QoS Based Routing Protocol for Wireless Sensor Networks
Mirela Fonoage (Florida Atlantic University, USA); Mihaela Cardei (Florida Atlantic University, USA); Arny Ambrose (Florida Atlantic University, USA)

Statistical Bandwidth Scavenging for Prioritized Device Coexistence
Anthony Plummer Jr (Michigan State University, USA); Mahmoud Taghizadeh (Michigan State University, USA); Subir Biswas (Michigan State University, USA)

Behavior Monitoring Framework in Large-Scale Wireless Sensor Networks
Feng Wang (Arizona State University, USA); Jianhua Gao (Wuhan University, P.R. China)

A Primal-dual Approximation Algorithm for the Minimum Cost Stashing Problem in Wireless Sensor Networks
Salimur Choudhury (Queen's University, Canada); Kamrul Islam (Queen's University, Canada); Selim G. Akl (Queen's University, Canada)

Lunch: Acoma, Noon – 1:30 p.m.

Session 5: 1:30 – 3:30 p.m.

Session 5: Embedded Systems and Storage Systems (Cimarron/Las Cruces)
Chair: Linwei Niu (Claflin University, USA)

Energy Efficient Scheduling for Hard Real-Time Systems with Fixed-Priority Assignment
Linwei Niu (Claflin University, USA)

ES-MPICH2: A Message Passing Interface with Enhanced Security
Xiaojun Ruan (Auburn University, USA); Qing Yang (Auburn University, USA); Mohammed I. Alghamdi (Al-Baha University, Saudi Arabia); Shu Yin (Auburn University, USA); Zhiyang Ding (Auburn University, USA); Jiong Xie (Auburn University, USA); Joshua Lewis (Auburn University, USA); Xiao Qin (Auburn University, USA)

OS Streaming Deployment
David Clerc (IBM Research Zurich Laboratory, Switzerland); Luis Garcés-Erice (IBM Research Zurich Laboratory, Switzerland); Sean Rooney (IBM Zurich Research Laboratory, Switzerland)

An Automatic Prefetching and Caching System
Joshua Lewis (Auburn University, USA); Mohammed Alghamdi (Auburn University, USA); Maen Al Assaf (Auburn University, USA); Xiaojun Ruan (Auburn University, USA); Zhiyang Ding (Auburn University, USA); Xiao Qin (Auburn University, USA)

Loosely Time-Synchronized Snapshots in Object-Based File Systems
Jan Stender (Zuse Institute Berlin, Germany); Mikael Högqvist (Zuse Institute Berlin, Germany); Björn Kolbeck (Zuse Institute Berlin, Germany)

Break: 3:30 - 4:00 p.m.

Session 6: 4:00 – 6:00 p.m.

Session 6: Network Protocols and Network Management (Cimarron/Las Cruces)
Chair: Song Fu (University of North Texas, USA)

Regression Based Multi-tier Resource Provisioning for Session Slowdown Guarantees
Sireesha Muppala (University of Colorado at Colorado Springs, USA); Xiaobo Zhou (University of Colorado at Colorado Springs, USA); Liqiang Zhang (Indiana University South Bend, USA)

Online Learning Approaches in Maximizing Weighted Throughput
Zhi Zhang (George Mason University, USA); Fei Li (George Mason University, USA); Songqing Chen (George Mason University, USA)

Selfish Misbehavior in Scheduling Algorithms of Wireless Networks
Ghazale Hosseinabadi (University of Illinois at Urbana-Champaign, USA); Nitin Vaidya (University of Illinois at Urbana-Champaign, USA)

Multiple Description Video Multicast in MANETs
Osamah Badarneh (Yarmouk University, Jordan); Michel Kadoch (Ecole de technologie superieure, Canada)

FRuG: A Benchmark for Packet Forwarding in Future Networks
Thilan Ganegedara (University of Southern California, USA); Weirong Jiang (University of Southern California, USA); Viktor Prasanna (University of Southern California, USA)

Reception (hors d'oeuvres to be served) and Poster Session: Mezzanine, 6:30 - 8:30 p.m.

Posters for IPCCC 2010

1 **"A Gateway-Based Approach for Information Retrieval from Data-Centric Wireless Sensor Networks from IP Hosts",** Brandon Maharrey, Auburn University
2 **"Hardware-Assisted Security Mechanism: the Acceleration of Cryptographic Operations with Low Hardware Cost",** Jed Kao-Tung Chang, Shaoshan Liu, Jean-Luc Gaudiot, University of California, Irvine, and Chen Liu, Florida International University
3 **"Profiling and Analysis of Power Consumption for Virtualized Systems and Applications",** Ziming Zhang, and Song Fu, University of North Texas
4 **"Modeling of Non-Gaussian Noise Impact on DSL Lines",** Rodolpho G. de Siqueira, Rodrigo Perazzo, and Djamel Sadok, Federal University of Pernambuco
5 **"Virtual Machine Auto-configuration for Web Application",** Yang Wang, and Mengyu Qiao, New Mexico Institute of Ming and Technology

IPCCC Schedule, Saturday, December 11, 2010

Registration: Cimarron, 8:30 – 9:00 a.m.

Session 7: 9:00 a.m. – Noon.

Session 7: Performance Evaluation and Modeling (Cimarron/Las Cruces)
Chair: Linwei Niu (Claflin University, USA)

Soft Error Propagation in Floating-Point Programs
Sha Li (University of Delaware, USA); Xiaoming Li (University of Delaware, USA)

Real-time models supporting resource management decisions in highly variable systems
Sara Casolari (University of Modena and Reggio Emilia, Italy); Michele Colajanni (University of Modena, Italy); Stefania Tosi (University of Modena and Reggio Emilia, Italy); Francesco Lo Presti (Universita' di Roma Tor Vergata, Italy)

Mnemonic Lossy Counting: An Efficient and Accurate Heavy-hitters Identification Algorithm
Qiong Rong (Chinese Academy of Sciences, P.R. China); Guangxing Zhang (Chinese Academy of Sciences, P.R. China); Gaogang Xie (Chinese Academy of Sciences, P.R. China); Kavé Salamatian (LISTIC PolyTech, Université de Savoie Chambery Annecy, France)

Internet topology on AS-level: model, generation methods and tool
Joanna Tomasik (Supélec, France); Marc-Antoine Weisser (Supélec, France)

A Time Dependent Performance Model for Multihop Wireless Networks with CBR Traffic
Kunjie Xu (University of Pittsburgh, USA); Siriluck Tipmongkonsilp (University of Pittsburgh, USA); David Tipper (University of Pittsburgh, USA); Prashant Krishnamurthy (University of Pittsburgh, USA); Yi Qian (University of Nebraska–Lincoln, USA)

Modeling the Behavior of a Beacon-Based Link Sensing Mechanism with Variable Sensing Range
Geir Egeland (University of Stavanger, Norway); Paal E. Engelstad (University of Oslo, Simula and Telenor GBD&R, Norway)

END OF IPCCC PROGRAM SCHEDULE

2010 Workshop Information

1st Workshop on New Applications and Performance of Cognitive Radio and Resource-aware Communication Networks in conjunction with IEEE IPCCC 2010

The recent ruling by the US Federal Communications Commission (FCC) opening up portions of the TV bands, also known as TV White Spaces (TVWS), for opportunistic transmission has spurred significant interest in the academia and industry to develop theory, prototypes and standards that leverage this new spectrum opportunity.

Cognitive Radio (CR) is an enabling technology that will allow adapting the radio's operating characteristics to the real-time conditions of the environment and make effective use of the TVWS while protecting incumbents. Similarly, devices that make optimal use of energy availability, computation ability, transmission power, and other network resources and thereby enable new and innovative application scenarios merit the attention of the community.

As an example, energy efficient "green" communications may be realized by regulating transmit power and identifying frequencies with greater propagation distances. Similarly, wireless devices for electric utility metering and medical implantable sensors may identify and adapt the functioning of the physical, link, and network layer protocols for enhanced coverage, more robust and collision-free operation. Such novel applications require re-visiting several classical networking paradigms of spectrum-agile communication, energy-efficient communication, node mobility, and merging inter-disciplinary research from a practical viewpoint.

This workshop will focus on key research challenges related to resource-aware communication networks, including the dynamic spectrum access paradigm, cognitive radio networks, sensor and mobile ad hoc networks, and it is intended to be a forum for collaboration across multiple communities, ranging from academic to government to industry.

Workshop Co-Chairs

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Professor, Federal University of Pará

RangaRao Venkatesha Prasad
Senior Researcher, Delft University of Technology, The Netherlands

KEYNOTE SPEAKER

THURSDAY , DECEMBER 9
8:30 - 9:45 A.M.

WEIGHTING AND MATCHING: ON OPTIMIZING RESOURCE ALLOCATION FOR MULTI CHANNEL RELAYING

BEN LIANG , PH.D.

Abstract:

In order to support ever increasing demands for broadband mobile communication, emerging wireless technologies increasingly turn to the simultaneous utilization of multi-channel communication and cooperative relaying. For example, the fourth-generation wireless standards have adopted a common architecture based on OFDM and relay stations. The availability of multiple channels and cooperative relays creates interesting interactions among the domains of frequency, time, and space, leading to new opportunities for system performance optimization.

As opposed to narrow-band single-channel relaying, a multi-channel relay may choose to receive a signal from one channel and transmit a processed version of the signal on a different channel. This capability may be exploited to adaptively take advantage of the diverse strengths of different channels.

Two questions are key to optimal system performance: What portions of the available transmission power should be allocated to each channel? How should the incoming and outgoing signals be optimally matched? These two problems, weighting and matching, are clearly interdependent. This adds to the challenge in performance optimization.

In this presentation, we discuss methods to jointly optimize power allocation and channel matching in multi-channel relaying. For different system scenarios, we introduce techniques to accommodate multiple relays and multiple wireless devices. We also explore into generalized matching and other open research problems. .

Speaker Bio:

Ben Liang received honors simultaneous B.Sc. (valedictorian) and M.Sc. degrees in electrical engineering from Polytechnic University in Brooklyn, New York, in 1997 and his Ph.D. degree in electrical engineering with computer science minor from Cornell University in Ithaca, New York, in 2001. He joined the Department of Electrical and Computer Engineering at the University of Toronto in 2002, where he is now an Associate Professor.

He conducts research on mathematical modeling, stochastic analysis, and optimization algorithms for wireless information networks and multimedia communication systems. He received an Intel Foundation Graduate Fellowship in 2000 and the Ontario MRI Early Researcher Award (ERA) in 2007. He was a co-author of the Best Paper Award at the IFIP Networking conference in 2005 and a Finalist for the Best Paper Award in IEEE INFOCOM 2010. He has served on the organization committees of several conferences, including as a general co-chair for Ambi-sys 2008, technical vice co-chair for IEEE MASS 2006, and technical track co-chair for ICCCAS 2006 and PIMRC 2011. He is an editor for the IEEE Transactions on Wireless Communications and an associate editor for the Wiley Security and Communication Networks journal.

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Preliminary Call for Papers and Participation

30th IEEE International Performance, Computing, and Communications Conference

December, 2011
Location TBD

Sponsored by the IEEE Computer Society

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IPCCC 2011 Call for Papers

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 2011

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
- Cloud Computing/
- Data-intensive 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 2011 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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