



## *Technical Program*

**Buffalo-Niagara Falls, New York**

**26-29 June, 2006**

sponsored by

**IEEE Computer Society,  
University of Texas at Arlington,  
IEEE Technical Community on  
Computer Communications [TCCC]**



## Organizing Committee

<b>General Co-Chairs:</b> Marco Conti, IIT-CNR, Italy Chunming Qiao, SUNY Buffalo, USA	<b>Technical Program Co-Chairs:</b> Marwan Krunz, University of Arizona, USA Archan Misra, IBM Research, USA
<b>Workshops Chair:</b> Giuseppe Anastasi, University of Pisa, Italy	<b>Finance &amp; Registration Chair:</b> Yonghe Liu, The University of Texas at Arlington , USA
<b>Publication Co-chairs:</b> Mario Di Francesco, University of Pisa, Italy Srinivasan Ramasubramanian University of Arizona, USA	<b>Publicity Co-Chairs:</b> Mainak Chatterjee, University of Central Florida , USA Sunghyun Choi, Seoul National University , Korea Franca Delmastro, IIT-CNR, Italy
<b>Local Arrangement Co-chairs:</b> Hung Q. Ngo, SUNY Buffalo, USA Prachee Sharma, SUNY Buffalo, USA	<b>Steering Committee</b> Marco Conti, IIT-CNR, Italy Sajal K. Das, The University of Texas at Arlington , USA Dipankar Raychaudhuri, Rutgers Univ., USA Satish K. Tripathi, SUNY Buffalo, USA
<b>Web Chair:</b> Murat Demirbas: SUNY Buffalo, USA	

### Monday, June 26, 2006

#### **Workshop #1 @ OLMSTEAD**

2nd International Workshop on Autonomic Communications and Computing (ACC 2006)  
- <http://www.autonomic-communication.org/acc/>

#### **Workshop #2 @ PORTER**

1st International Workshop on advanced EXPerimental activities ON WIRELESS  
networks and systems (EXPONWIRELESS 2006) -  
<http://netgroup.iet.unipi.it/EXPONWIRELESS/>

#### **Workshop #3 @ REDJACKET**

4th International Workshop on Mobile Distributed Computing (MDC 2006) -  
<http://www.ing.unipi.it/mdc06/>

#### **Workshop #4 @ WHITNEY**

2nd International Workshop on Trust, Security and Privacy in Ubiquitous Computing  
(TSPUC 2006) - <http://www.iit.cnr.it/TSPUC2006>



**Tuesday, June 27, 2006**

**Session 1 (8:30am - 10am): Sensor Networks I @ CASCADE II**

Chair: Giuseppe Anastasi, University of Pisa, (g.anastasi@iet.unipi.it)

- Some Insights from Bounds on UWB Sensor Localization  
Swaroop Venkatesh (Virginia Tech), Michael Buehrer (Virginia Tech)
- An Energy-Efficient Data Dissemination protocol in wireless sensor networks  
Zehua Zhou (Univ. of Buffalo), Xin Wang (Stony Brook University), Xiaojing Xiang (Univ. of Buffalo), JP Pan (Univ. of Victoria)
- Entrapping Adversaries for Source Protection in Sensor Networks  
Yi Ouyang (Dartmouth College), Zhengyi Le (Dartmouth College), Guanling Chen (Univ. of Massachusetts, Lowell), James Ford (Dartmouth College), Fillia Makedon (Dartmouth College)

**Keynote 1 (10:30-11:30 am) @ CASCADE II**

Dr. Kumar Ramaswamy, VP, Corporate Research, Thomson Inc.

**Session 2A (1pm - 2:15pm): Next-Generation Wireless LANs @ REDJACKET**

Chair: Jyh-Cheng Chen, National Tsing Hua University (jcchen@cs.nthu.edu.tw)

- A Scalable MAC Protocol for Next-Generation Wireless LANs  
Zakhia Abichar (Iowa State University), J. Morris Chang (Iowa State University), Daji Qiao (Iowa State University)
- AISLE: Autonomic Interface SeLEction for Wireless Users  
Claudio Casetti (Politecnico di Torino), Carla-Fabiana Chiasserini (Politecnico di Torino), Roberta Fracchia (Politecnico di Torino), Michela Meo (Politecnico di Torino)
- MCMSDA: A Multi-Channel Multi-Sector Directional Antenna Wireless LAN  
Yong Huang (Univ. of Massachusetts, Amherst), Weibo Gong (Univ. of Massachusetts, Amherst), Dev Gupta (Newlans)

**Session 2B (1pm - 2:15pm): Wireless Multicast @ PORTER**

Chair: Rajendra V Boppana, UT San Antonio (boppana@cs.utsa.edu)

- Cross-Layer Resource-Consumption Optimization for Mobile Multicast in Wireless Networks  
Xi Zhang (Texas A&M University), Qinghe Du (Texas A&M University)
- Evaluating Different One to Many Packet Delivery Schemes for UMTS  
Christos Bouras (Univ. of Patras), Antonios Alexiou (Univ. of Patras), Dimitrios Antonellis (Univ. of Patras)
- An Efficient Geographic Multicast Protocol for Mobile Ad Hoc Networks  
Xiaojing Xiang (Univ. of Buffalo), Xin Wang (Stony Brook University), Zehua Zhou (Univ. of Buffalo, US)



### **Session 3 (2:45pm - 4:15pm): Data Routing & Encoding Strategies @ CASCADE II**

Chair: Silvia Giordano, SUPSI (silvia.giordano@supsi.ch)

- Mobile Element Based Differentiated Message Delivery in Wireless Sensor Networks  
Yaoyao Gu (Ohio State University), Doruk Bozdog (Ohio State University), Eylem Ekici (Ohio State University)
- Inter-Regional Messenger Scheduling in Delay Tolerant Mobile Networks  
Khaled Harras (Univ. of California, Santa Barbara), Kevin Almeroth (Univ. of California, Santa Barbara)
- Network Coding for Wireless Mesh Networks: A Case Study  
Anwar Al Hamra (Univ. of Oslo), Chadi Barakat (INRIA, Sophia Antipolis), Thierry Turletti (INRIA, Sophia Antipolis)

### **Session 4A (4:45pm - 6pm): Energy-Efficient Networking @ REDJACKET**

Chair: Kevin Almeroth, UC Santa Barbara (almeroth@cs.ucsb.edu)

- Energy Conservation in Sensor Networks through Selective Activation of Nodes using Thresholding  
Prachee Sharma (SUNY, Buffalo), Asheq Khan (SUNY, Buffalo), Ashok K. Narasimhan (SUNY, Buffalo), Sridhar Ramalingam (SUNY, Buffalo), Satish K. Tripathi (SUNY, Buffalo).
- An Energy-Efficient Forwarding Scheme for Wireless Sensor Networks  
Marcel Busse (Univ. of Mannheim), Thomas Haenselmann (Univ. of Mannheim), Wolfgang Effelsberg (Univ. of Mannheim)
- A Distributed Minimum Energy Multicast Algorithm in MANETs  
Song Guo (Univ. of British Columbia), Victor Leung (Univ. of British Columbia), Oliver Yang (Univ. of Ottawa)

### **Session 4B (4:45pm - 6pm): Multi-Hop and Mesh Networks @ PORTER**

Chair: Rajarshi Gupta, Qualcomm Inc. (drrajarshigupta@gmail.com)

- A Flow Control Framework for Improving Throughput and Energy Efficiency in CSMA/CA based Wireless Multihop Networks  
Jaya Shankar Pathmasuntharam (Institute for Infocomm Research) , Amitabha Das (Nanyang Technological University), Prasant Mohapatra (Univ. of California, Davis)
- Po<sup>2</sup>V: Network Layer Position Verification in Multi-Hop Wireless Networks  
Xiaoxin Wu (Purdue University), Cristina Nita-Rotaru (Purdue University)
- Adapting AODV for IEEE 802.15.4 Mesh Sensor Networks: Theoretical Discussion and Performance Evaluation in a Real Environment  
Carles Gomez (Technical Univ. of Catalonia) , Pere Salvatella (Technical Univ. of Catalonia), Oscar Alonso (Technical Univ. of Catalonia), Josep Paradella (Technical Univ. of Catalonia)

**IBM Student Reception (6:30pm) @ GRAND FOYER ( Registration Area)**



## Wednesday, June 28, 2006

### Session 5 (8:30am - 10am): MAC Enhancements @ CASCADE II

Chair: Yonghe Liu, University of Texas, Arlington (yonghe@cse.uta.edu)

- A New MAC Scheme for Very High-Speed WLANs  
Tianji Li (National Univ. Of Ireland), Qiang Ni (Brunel University), David Malone (National Univ. Of Ireland), Douglas Leith (Hamilton Institute), Yang Xiao (Univ. of Memphis), Thierry Turletti (INRIA, Sophia-Antipolis)
- Practical Schemes for Smooth MAC Layer Handoff in IEEE 802.11 Wireless Networks  
Yong Liao (Univ. of Massachusetts, Amherst), Lixin Gao (Univ. of Massachusetts, Amherst)
- MAC-layer Scheduling in Cognitive Radio based Multi-hop Wireless Networks  
Mansi Thoppian (Univ. of Texas, Dallas), Subbarayan Venkatesan (Univ. of Texas, Dallas), Ravi Prakash (Univ. of Texas, Dallas), Ramaswamy Chandrasekaran (Univ. of Texas, Dallas)

**Keynote 2 (10:30-11:30 am) @ CASCADE II**  
Kevin Fall (Principal Engineer, Intel Research)

### Poster Session (1pm - 2:15pm) @ GRAND FOYER (Registration Area)

*(Details on last page)*

### Session 6A (2:45pm - 4:25pm): Next-Generation Networks @ REDJACKET

Chair: Dave Lewis, Trinity College, Dublin (dave.lewis@cs.tcd.ie)

- Middleware Support for Context-Awareness in 4G Systems  
Thomas Springer (Dresden Univ. of Technology), Kay Kadner (Dresden Univ. of Technology), Frank Steuer (Technical Univ. of Berlin), Ming Yin (T-Systems International)
- Efficient End-to-End Mobility Support in IPv6 for Reactive and Proactive Handoffs  
Christian Vogt (Univ. of Karlsruhe)
- Simulative Analysis of Access Selection Algorithms for Multi-access Networks  
Denio Mariz (Federal Univ. of Pernambuco), Igor Cananéa (Federal Univ. of Pernambuco), Djamel Sadok (Federal Univ. of Pernambuco), Gabor Fodor (Ericsson Research)
- Minimum Cost Wireless Broadband Overlay Network Planning  
Peng Lin (SUNY, Buffalo), Hung Ngo (SUNY, Buffalo), ChunMing Qiao (SUNY, Buffalo), Xin Wang (SUNY, Stony Brook), Ting Wang (NEC Laboratories), DaYou Qian (NEC Laboratories)



## **Session 6B (2:45pm - 4:25pm): Sensor Networks II @ PORTER**

Chair: Ramalingam Sridhar, University at Buffalo

- Modelling Node Compromise Spread in Wireless Sensor Networks Using Epidemic Theory  
Pradip De (Univ. of Texas, Arlington), Yonghe Liu (Univ. of Texas, Arlington), Sajal Das (Univ. of Texas, Arlington)
- Optimal Transmission Range for Cluster-Based Wireless Sensor Networks with Mixed Communication Modes  
Xi Zhang (Texas A&M University), Hang Su (Texas A&M University),
- On-Demand Reliable Medium Access in Sensor Networks  
Ratnabali Biswas (Univ. of Cincinnati), Vivek Jain (Univ. of Cincinnati), Chittabrata Ghosh (Univ. of Cincinnati), Dharma Agrawal (Univ. of Cincinnati)
- Wireless Sensor Networks: To Cluster or Not To Cluster?  
Natalija Vljajic (York University), David Xia (York University)

## **Panel Discussion (4:40pm - 6:00 pm) @ PORTER + DEVEAUX**

*“Integrated Optical and Wireless Technologies for Broadband Access and Metro Networks”*

**Organizer:** T. Wang, Department Head, NEC Labs America, Princeton, NJ

**Moderator:** Milorad Cvijetic, Chief Technology Strategist, Optical Network Systems Division, NEC America

**Social Dinner (6:15pm) @ CASCADE I**



**Thursday, June 29, 2006**

**Session 7 (8:30am - 10am):**

**Multimedia Traffic & Wireless Scheduling @ CASCADE II**

Chair: Sunghyun Choi, Seoul National University (schoi@snu.ac.kr)

- Rate Scheduling of Multimedia Streams over Parallel Wireless Data Channels with Heterogeneous Reliability Ki-Dong Lee (Univ. of British Columbia), Victor Leung (Univ. of British Columbia)
- Opportunistic Scheduling of Delay Sensitive Traffic in OFDMA-based Wireless Networks  
Khaled Elsayed (Cairo University), Ahmed Khattab (Rice University)
- Selective Channel Feedback Mechanisms for Wireless Multichannel Scheduling  
Young-June Choi (Seoul National University), Saewoong Bahk (Seoul National University)

**Session 8A (10:30am - 11:45am):**

**Testbeds and Experimental Results @ REDJACKET**

Chair: Shambhu Upadhyaya, SUNY at Buffalo (shambhu@cse.Buffalo.EDU)

- Management and Diagnosis Architecture for a Large-Scale Public WLAN  
Seongkwan Kim (Seoul National University), Sekyu Park (MMC Technology), Sunghyun Choi (Seoul National University), Jaehwan Lee (Univ. of Maryland, College Park), Hanwook Jung (Korea Telecom)
- Squeezing 100+ VoIP calls out of 802.11b WLANs  
Sangki Yun (Korea University), Hyogon Kim (Korea University), Inhye Kang (Univ. of Seoul)
- Gauging VoIP call quality from 802.11b WLAN resource usage  
Mirosław Narbutt (Dublin Institute of Technology), Mark Davis (Dublin Institute of Technology)

**Session 8B (10:30am - 11:45am): Higher-Layer Protocols @ PORTER**

Chair: Anwar Al Hamra, University of Oslo (anwarah@ifi.uio.no)

- An Image-based Rendering Approach for Wireless Devices  
Azzedine Boukerche (Univ. of Ottawa), Jing Feng (Univ. of Ottawa), Regina Araujo (Univ. of Ottawa)
- k-NN Multimedia Retrieval in Peer-to-Peer Networks  
Bo Yang (Penn. State University), Ali Hurson (Penn. State University)
- TCP over Rate-Adaptive WLAN - An Analytical Model and its Simulative Verification  
Carsten Burmeister (Hamburg Univ. of Technology)



**Session 9 (1pm - 2:30pm):**

**QoS and Performance of Next Generation Cellular Networks @ CASCADE II**

Chair: John Lin, Bell Labs (lin@research.bell-labs.com)

- Performance Evaluation of PTM combined File Repair Procedure over MBMS  
Thorsten Lohmar (Ericsson)
- Performance Analysis and Enhancement of the Next Generation Cellular Networks  
Xiang Yu (Frostburgh State), Chunming Qiao (SUNY Buffalo), Xin Wang (SUNY Stony Brook), Dahai Xu (Princeton)
- Cross-Layer Modeling for Quality of Service Guarantees Over Mobile Wireless Networks  
Xi Zhang (Texas A&M University), Jia Tang (Texas A&M University)

**Session 10A (3pm - 4:15pm): Link Models and Optimization @ REDJACKET**

Chair: David Soldani, Nokia, David.Soldani@nokia.com

- A new wireless channel fade duration model for exploiting multi-user diversity gain and its applications  
Chengzhi Li (Univ. of Texas, Arlington), Hao Che (Univ. of Texas, Arlington)
- Fast Downloading of large Files over fading wireless channels  
Enzo Baccarelli (Univ. of Rome, 'La Sapienza'), Mauro Biagi (Univ. of Rome, 'La Sapienza'), Nicola Cordeschi (Univ. of Rome, 'La Sapienza'), Cristian Pelizzoni (Univ. of Rome, 'La Sapienza')
- Selective Cooperation Based on Link Distance Estimations in Wireless Ad-Hoc Networks  
Tong Lee Lim (Institute for Infocomm Research), Vineet Srivastava (Institute for Infocomm Research), Mehul Motani (National Univ. of Singapore)

**Session 10B (3pm - 4:15pm): 802.11 Enhancements @ PORTER**

Chair: Murat Demirbas, SUNY at Buffalo (demirbas@cse.Buffalo.EDU)

- LIHP: A Low Latency Layer-3 Handoff Scheme for 802.11 Wireless Networks  
John Lin (Bell Labs, Lucent), Sampath Rangarajan (Bell Labs, Lucent)
- A Station-Based Adaptation Algorithm to Improve the Robustness of IEEE 802.11  
Jean Cao (Univ. of Calgary), Yujing Wu (Univ. of Calgary), Carey Williamson (Univ. of Calgary)
- Resource Control for the EDCA Mechanism in Multi-Rate IEEE 802.11e Networks  
Vasilios Siris (Institute for Computer Science, FORTH), Costas Courcoubetis (Athens Univ. of Economics and Business)





**Poster Session (1:00-2:15pm)-Wednesday, June 29, 2006**  
**@ GRAND FOYER (Registration Area)**

- Enabling Engineering Document in Mobile Computing Environment  
Xiaoyong Su, Chi-Cheng Chu, B.S. Prabhu, Rajit Gadh (Univ. of California, Los Angeles)
- Receiver Sensitivity Control in Multihop CSMA Networks for Real-time Applications  
Bo Yan (NIST), Hamid Gharavi (NIST)
- Can I add a secure VoIP call?  
Arlen Nascimento (Federal Univ. of Amazonas); Alexandre Passito (Federal Univ. of Amazon); Edjair Mota (Federal Univ. of Amazonas); Edson Nascimento (Federal Univ. of Amazonas); Leandro Carvalho (Federal Univ. of Amazonas)
- HRPD-A Downlink Voice/IP and Data Throughput and Delay Analysis  
Tony Dean (Motorola), Dennis Schaeffer (Motorola), Weimin Xiao (Motorola), Fan Wang (Motorola)
- A Real-time Smoothing Scheme of MPEG-4 Video for CDMA Systems  
Jie Qin (Univ. of Posts and Telecomm), Binzhang Liu (Univ. of Posts and Telecomm), Shin Zhang (Univ. of Posts and Telecomm), Dacheng Yang (Univ. of Posts and Telecomm)
- An Energy-efficient DSR Routing Protocol Based on Mobility Prediction  
Yuhong Luo (Central South University), Jianxin Wang (Central South University), SongQiao Chen (Central South University)
- A MAC Layer Protocol for Priority-based Reliable Broadcast in Wireless Ad Hoc Networks  
Murat Demirbas (SUNY, Buffalo), Muzammil Hussain (SUNY, Buffalo)
- S2RP: a Scalable and Secure Rekeying Protocol for Wireless Sensor Networks  
Gianluca Dini (Univ. of Pisa), Ida Savino (Univ. of Pisa)
- Analysis of Contention Based Multichannel MAC for Point-to-Multipoint Networks  
Rajagopal Iyengar (Rensselaer Polytechnic Institute), Vicky Sharma (Rensselaer Polytechnic Institute), Koushik Kar (Rensselaer Polytechnic Institute), Biplab Sikdar (Rensselaer Polytechnic Institute)
- Engineering of Replica Voting Protocols for Dependable Real-time Data Delivery over Wireless Networks  
Ali Sabbir (City Univ. of New York), Kaliappa Ravindran (City Univ. of New York), Kevin Kwiat (Air Force Research Laboratory)
- Preserving Privacy in Wireless Mesh Networks  
Taojun Wu (Vanderbilt University), Yi Cui (Vanderbilt University), Yuan Xue (Vanderbilt University)
- An Adaptive Rate Control Algorithm for Real-time Streaming of Image-based 3D Rendering over Heterogeneous Wireless Networks  
Azzedine Boukerche (Univ. of Ottawa), Firas Kasem (Univ. of Ottawa)





**Buffalo-Niagara Falls, New York**  
**26-29 June, 2006**

## *Organizers*



**Centre for Research in Wireless Mobility and Networking**  
**The University of Texas at Arlington**



**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**University at Buffalo The State University of New York**

## Industrial Sponsors



**NOKIA**  
Connecting People