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Romit Roy Choudhury

Research Interests

Wireless Networking and Mobile Computing

- Mobile phones as a platform for people-centric sensing and computing
- Exploiting physical layer capabilities for wireless protocol design

Education

University of Illinois at Urbana-Champaign, Ph.D, Computer Science, July 06
Thesis: Utilizing Beamforming Antennas for Wireless Multihop Networks
Advisor: Prof. Nitin Vaidya

University of Illinois at Urbana-Champaign, M.S., Electrical Engineering, May 03
Thesis: Medium Access Control in Wireless Networks using Directional Antennas

Haldia Institute of Technology, India, B. Tech (Hons.), Dept. CSE, Aug 2000

Honors and Awards

- Appointed Nortel Network Assistant Professor of ECE, Mar 2009.
- NSF Career Award, Jan 2008
- Winner of ACM Student Research Competition, ACM Mobicom 2008
- Vodafone Graduate Fellowship, 2005
- Motorola Center for Communications Fellowship, 2004 and 2003
- Conference Best Paper Award – Personal Wireless Conference (PWC) 2003
- University Silver Medal, B.Tech, 2000

Experience

- **Assistant Professor**, Duke University, Dept. of ECE and CS
Sep 2006 -- present
- **Research Assistant**, UIUC, Dept. of ECE
Sep 2001 – Aug 2006

Invited Talks

“Designing a Virtual Information Telescope with Mobile Phones and Social Participation”

- University of California, Los Angeles, Feb 09
- Palo Alto Research Center, Palo Alto, Feb 09
- University of California, Santa Cruz, Feb 09
- University of Illinois, Urbana-Champaign, Nov 08
- Purdue University, Nov 08
- University of Michigan, Ann Arbor, Oct 08
- Univ. of North Carolina, Chapel Hill, Oct 08
- Nokia Research, San Jose, Sep 08
- Cisco Research, San Jose, Sep 08
- Microsoft Research, Redmond, July 08

“Message in Message (MIM): A New Way to Cope with Wireless Interference”

- University of Colorado, Boulder, June 08
- SUNY, Stony Brook, May 08

Ten Selected Publications

1. Justin Manweiler, Naveen Santhapuri, Souvik Sen, Romit Roy Choudhury, Srihari Nelakuditi, K. Munagala, "Order Matters: Transmission Reordering in Wireless Networks", *ACM MobiCom*, September 2009.
2. Martin Azizyan, Ionut Constandache, Romit Roy Choudhury, "SurroundSense: Localizing Mobile Phones through Ambience Fingerprinting", *ACM MobiCom*, September 2009.
3. Joseph Meyerowitz, Romit Roy Choudhury, "Enabling Realtime Location Privacy with Predictive Anonymization", *ACM MobiCom*, September 2009.
4. Ionut Constandache, Shravan Gaonkar, Matt Sayler, Romit Roy Choudhury, Landon Cox, "EnLoc: Energy Efficient Localization for Mobile Phones", *IEEE Infocom* mini-conference, April, 2009.
5. N. Santhapuri, J. Manweiler, S. Sen, R. Roy Choudhury, S. Nelakuditi, K. Munagala, "Message in Message (MIM): A Case for Reordering Transmissions in Wireless Networks", *ACM Hotnets*, October, 2008.
6. Shravan Gaonkar, Jack Li, Romit Roy Choudhury, Landon Cox, Al Schmidt, "Micro-Blog: Sharing and Querying Content through Mobile Phones and Social Participation", *ACM MobiSys*, June 2008
7. Souvik Sen, Xiong Jie, Rahul Ghosh, Romit Roy Choudhury, "Link Layer Multicast using Smart Antennas: No Client Left Behind", *IEEE ICNP*, October, 2008.
8. Romit Roy Choudhury, Nitin Vaidya, "Deafness: A MAC Problem in Ad Hoc Networks when using Directional Antennas", in *IEEE (ICNP)*, Sep 2004.
9. Romit Roy Choudhury, Nitin Vaidya, "Impact of Directional Antennas on Ad Hoc Routing" Proceedings of 8th Conference on *Personal and Wireless Communication (PWC)*, 2003 (**Best Paper Award**)
10. Romit Roy Choudhury, Xue Yang, Ram Ramanathan and Nitin Vaidya, "Using Directional Antennas for Medium Access Control in Ad Hoc Networks" in *ACM MobiCom*, Atlanta, September 2002.

Other Publications

Journals:

11. Tong Zhou, Romit Roy Choudhury, Peng Ning, Krish Chakrabarty, "Privacy Preseving Sybil Attack Detection in Vehicular Networks", submitted to *IEEE Transactions on Intelligent Transportation Systems*.
12. Pradeep Kyasanur, Romit Roy Choudhury, Indranil Gupta, "Smart Gossip: A Probablistic Framework for Broadcasting in Sensor Networks", in revision for *IEEE Transaction of Mobile Computing (TMC)*.
13. Romit Roy Choudhury, Nitin H. Vaidya "On Designing MAC Protocols for Wireless Networks using Directional Antennas" in *IEEE Transactions of Mobile Computing (TMC)*, 2006.
14. Romit Roy Choudhury, Nitin H. Vaidya "Performance of Ad Hoc Routing using Directional Antennas" in *Journal of Ad Hoc Networks*, Elsevier Publishers, November, 2004.
15. Romit Roy Choudhury, K. Paul, and S. Bandyopadhyay, "An Agent-based Connection Management Protocol for Ad Hoc Wireless Networks" in *Journal of Network and System Management*, Vol. 10, No. 4, December 2002.
16. Romit Roy Choudhury, S. Bandyopadhyay and K. Paul, "MARP: A Multi-Agent Based Routing Protocol for Mobile Ad Hoc networks" in *Journal of Autonomous Agents and Multi-Agent Systems (AAMS)*, Kluwer, 04.

Conferences:

17. Xuan Bao, Romit Roy Choudhury, "VUPoints: Collaborative Sensing and Video Recording through Mobile Phones", *ACM MobiHeld* (with ACM Sigcomm), August, 2009.
18. Sandip Agrawal, Ionut Constandache, Shravan Gaonkar, Ionut Constandache, "PhonePoint Pen: Using Mobile Phones to Write in Air", *ACM MobiHeld* (with ACM Sigcomm), August, 2009.
19. Joseph Meyerowitz, Romit Roy Choudhury, "Realtime Location Privacy Via Mobility Prediction: Creating Confusion at Crossroads", *ACM Hotmobile*, February, 2009.
20. Andrew Offstad, Emmett Nicholas, Rick Szcudronski, Romit Roy Choudhury, "AAMPL: Accelerometer Augmented Mobile Phone Localization", *ACM MELT (with Mobicom 2008)*, September, 2008.
21. Shravan Gaonkar, Romit Roy Choudhury, Luiz Magalhaes, and Robin Kravets, "Designing a Rate-Based Transport Protocol for Wired-Wireless Networks" *IEEE Broadnets*, Sep 2007.
22. Romit Roy Choudhury, Nitin H. Vaidya "MAC-Layer Capture: A Problem in Wireless Networks Using Beamforming Antennas", *IEEE SECON*, June 2007
23. Tong Zhou, Romit Roy Choudhury, P. Ning, and K. Chakrabarty, "Privacy Preserving Detection of Sybil Attack in Vehicular Ad Hoc Networks", *ACM Mobiquitous*, Aug 2007.
24. Pradeep Kyasanur, Romit Roy Choudhury, Indranil Gupta, "Smart Gossip: An Adaptive Gossip-based Broadcasting Service for Sensor Networks" *IEEE MASS*, Oct 2006 (**Best paper Nominee**)
25. Romit Roy Choudhury, "Brownian Gossip: Exploiting Node Mobility for Diffusing Information in Wireless Networks", *IEEE Stochasticity in Distributed Systems (StoDis)*, Dec 2005
26. Romit Roy Choudhury, Nitin Vaidya, "MAC-Layer Anycasting in Wireless Ad Hoc Networks", in 2nd workshop on *ACM (HotNets II)* at MIT, Cambridge, 2003.
27. Romit Roy Choudhury, S. Bandyopadhyay and K. Paul, "A Distributed Mechanism for Topology Discovery in Ad hoc Wireless Networks using Mobile Agents", *ACM MobiHoc 2000*
28. Romit Roy Choudhury, S. Bandyopadhyay and K. Paul, "An Agent Based Protocol to support Multimedia Communication in Ad Hoc Wireless Networks", accepted for *IEEE IPDPS*, August 2001.

Demos / Posters / Patents:

29. Martin Azizyan, Romit Roy Choudhury, "SurroundSense: Mobile Phone Localization Using Ambient Sound and Light", Poster, *ACM Mobicom*, Sep 2008 (**Winner of the ACM Student Research Competition**).
30. Joseph Meyerowitz, Romit Roy Choudhury, "CacheCloak: Enabling Realtime Location Privacy for Mobile Users", Poster *ACM MobiCom*, Sep 2008
31. Souvik Sen, Rahul Ghosh, Jie Xiong, Romit Roy Choudhury, "BeamCast: Harnessing Beamforming Capabilities for Link Layer Multicast", Poster, *ACM MobiCom*, Sep 2008
32. Ionut Constandache, Matt Saylor, Shravan Gaonkar, Romit Roy Choudhury, L. Cox, "Energy-Aware Localization Using Mobile Phones", Poster, *ACM MobiSys*, June 2008

33. Shravan Gaonkar, Romit Roy Choudhury, "Map-casting from Mobile Phones to Virtual Sensor Maps", Demo, *ACM Mobicom*, Sep 2007
 34. Shravan Gaonkar, Romit Roy Choudhury, "Micro-Blog: Map-casting from Mobile Phones to Virtual Sensor Maps", Demo, *ACM Sensys*, Nov 2007
 35. Romit Roy Choudhury, T. Ueda "Implicit MAC Acknowledgment for 802.11 in Directional WLANs", Patent Pending, Japan, 2004.
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Invited Tutorial

- "Smart Antennas for Wireless Networks", ICDCN 2008

Conference Talks

- "Micro-Blog: Sharing and Querying Content through Mobile Phones and Social Participation" ACM MobiSys, 2008
 - "MAC-Layer Capture: A Problem in Wireless Mesh Networks Using Beamforming Antennas", IEEE SECON 2007
 - "Smart Gossip: An Adaptive Gossip-based Broadcasting Service for Sensor Networks", IEEE MASS 2006
 - "Deafness: A MAC Problem in Ad Hoc Networks when using Directional Antennas", IEEE ICNP 2004
 - "MAC-Layer Anycasting in Wireless Ad Hoc Networks", ACM Hotnets 2003
 - "Using Directional Antennas for Medium Access Control in Ad Hoc Networks", ACM Mobicom 2002
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Teaching

- ECE 256 / CS 215: Wireless Networking and Mobile Computing
Developed and first offered in Spring 2007, repeated in Spring 2008, 2009
Course enrollment: 24 (2007), 30 (2008), 15 (2009)
 - ECE 156: Introduction to Computer Network Architecture
Majorly updated and offered in Fall 07, repeated in Fall 08
Course enrollment: 28 (2007), 45 (2008)
 - ECE 192: Undergraduate Research
Spring 07, Fall 07, Spring 08, Fall 08, Spring 09
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Service to Research Community

Journal Referee

- IEEE Transactions on Networking (ToN), IEEE Transactions on Mobile Computing (TMC), IEEE Transactions on Wireless Communications (ToC), IEEE Transactions on Vehicular Networking Technology (TVT), IEEE Transactions on Sensor Networks (ToSN), Elsevier Journal of Systems and Software (JSS), IEEE Transactions on Parallel and Distributed Systems (TPDPS), Wireless Networks (WiNET)

Conference Referee

- MobiHand 09, WinMee 09, Infocom (2009, 2008), MobiSys 2008, SECON (2008, 2007), ICDCS (2008, 2007), MobiHoc 2007, Broadnets 2007, Mobicom 2006

Conference Organizer

- General Co-Chair: Mobihoc 2009 Wireless S3 Workshop
- Travel Awards Chair: Mobicom 2009, SECON 2008
- Publicity Chair: MobiSys 2008, ICDCN 2008, Mobihoc 2007,

Service to ECE, CS, Duke

- ECE IT Committee, 2008, 2009
 - ECE Webpage Committee, 2008
 - ECE Faculty Search Committee, 2009, CS Faculty Search Committee, 2008
 - ECE Seminar Organizer, 2008-2009
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