

Romit Roy Choudhury

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Appointments

- Associate Professor,
Dept. of ECE and CS, University of Illinois at Urbana-Champaign, Sep 2013 to present
- Nortel Networks Associate Professor,
Dept. of ECE and CS, Duke University, July 2011 to present
- Assistant Professor,
Dept. of ECE and CS, Duke University, Sep 2006 to Jun 2011
- Visiting Researcher,
Microsoft Research, Redmond, Summer 2010

Education

- University of Illinois at Urbana-Champaign, USA
Computer Science, Ph.D., October, 2006.
- University of Illinois at Urbana-Champaign, USA
Electrical and Computer Engineering (ECE), M.S., May 2003.
- Haldia Institute of Technology, India
Computer Science, B.Tech., June 2000.

Research Interests

- *Wireless Networking*: Exploiting physical layer capabilities for designing network protocols
- *Mobile Computing*: Application-driven research using mobile phones as a sensing/computing platform

Honors and Awards

- Best Paper Honorable Mention, UbiComp 2013
- Google Faculty Research Award, 2013
- Winner of ACM MobiSys Best Poster, 2011
- Runners Up of ACM MobiSys Demo Contest, 2011
- Winner of ACM MobiCom Student Research Competition, 2010
- Hoffmann Krippner Award for Innovations in Student Engineering, 2009
- Runners Up of ACM MobiCom Student Research Competition, 2009
- Top 2 papers, ACM Sigcomm MobiHeld, 2009
- Appointed Nortel Network Assistant Professor of ECE, 2009
- NSF CAREER Award, 2007
- Top 3 papers in IEEE MASS, 2006
- Vodafone Graduate Fellowship, 2005
- Motorola Center for Communications Fellowship, 2004 and 2003
- Best Paper Award Personal Wireless Conference (PWC) 2003
- University Silver Medal, B.Tech, 2000

Selected Professional Activities

- **Keynotes**

ACM PUCAA workshop (in conjunction with UbiComp), 2013
ACM MobiArch workshop (in conjunction with MobiCom), 2012
ACM MCS workshop (in conjunction with MobiSys), 2011

- **Recent Invited Talks**

Google (May, 2012), Texas A&M (Apr, 2012), UIUC (Oct, 2011), AT&T Labs (Aug, 2011), Intel Labs, Portland (Aug, 2011), UT Austin (Oct, 2010), Microsoft Research (Aug, 2010), Intel Labs Seattle (Jul, 2010), Bell Labs (Nov, 2009), Univ. Michigan (Oct, 2009), Tsinghua Univ (Sep, 2009), PARC (Apr, 2009), UCLA (Feb, 2009), UIUC (Nov, 2008) ...

- **Journal Area Editor:**

- IEEE Transactions on Mobile Computing (TMC)
- ACM Sigcomm Computer Communications Review (CCR)
- Computer Networks Journal (ComNet), Elsevier

- **Journal Reviewer:**

- IEEE Transaction on Networking
- ACM/IEEE Transaction on Sensor Networks
- IEEE Transactions on Wireless Communication
- IEEE Transactions on Parallel and Distributed Systems
- ACM Sigmobile Mobile Computing and Communications Review
- ACM Transactions on Sensor Networks
- Elsevier Ad Hoc Networks Journal
- Elsevier Computer Networks Journal

- **TPC co-chair:** ACM Hotmobile 2014, ACM MobiSys 2013, IEEE WiMesh 2010

- **TPC member:** MobiSys 2014/12/10, Sigcomm 2012, MobiCom 2014/12/11, SenSys 2014/13/2010, Infocom 09.

- **General Chair:** ACM/Sigmobile S3 Workshop 2009

- **Poster/Demo Chair:** MobiCom 2010, MobiSys 2010, SECON 2010, etc.

- **Student Travel Grant Chair:** MobiCom 2009, SECON 2008

Research Grants

- Co-PI: NIH 2012, \$250,000. Title: “SmokeSense: Detecting Smoking and its Antecedents”
- Co-PI: NSF FIA 2010, \$300,000. Title: “MobilityFirst: A Robust Architecture for the Future Internet”
- PI: NSF NeTS 2010, \$240,000. Title: “PHY-IN: Physical Layer Informed Networking ...”
- PI: NSF NeTS 2010, \$120,000. Title: “Logical Localization for Mobile Devices via Ambience Sensing ...”
- PI: NSF NetSE 2009, \$357,000. Title: “From Position to Place in Next Generation Networks ...”
- PI: NSF NeTS 2009, \$499,876. Title: “Transmission Reordering in Wireless Networks ...”
- PI: NSF CAREER 2008, \$453,365. Title: “Exploiting Antenna Capabilities in Wireless Networks ...”
- Co-PI: NSF CSR 2007, \$340,997. Title: “VCM: Managing Concurrent Opportunistic Sensor Nets ...”

Industry Funding

- PI: Qualcomm 2014, Gift \$100,000. Title: “Activity Recognition for Human Centric Applications”
- PI: Samsung 2014, \$195,635. Title: “Other Building Blocks for Indoor Localization ... ”
- Co-PI: Huawei 2014, Gift \$100,000 (\$50,000 allocated to me). Title: “High density WiFi ... ”

- PI: Google 2013, Gift \$55,000. Title: *“Recognizing Humans without Face Recognition ... ”*
- PI: ThyssenKrup 2013, Gift \$18,000. Title: *“Elevators of the Future ... ”*
- PI: Intel 2012, \$55,000. Title: *“Context Awareness with mobile sensors ... ”*
- PI: Intel 2012, Gift \$35,000. Title: *“Context Awareness with mobile sensors ... ”*
- PI: HP Labs 2012, Gift \$25,000. Title: *“Aggressive Packet Error Recovery ... ”*
- PI: Microsoft Research 2010, SoRa equipment. Title: *“PHY-Informed Wireless Networking ... ”*
- PI: Microsoft Research, 2009, Gift \$10,000 + equipment.
- PI: Cisco Research 2007, Gift \$100,000. Title: *“Exploiting Smart Antennas for Wireless Networks”*
- PI: Nokia Research 2007, Gift \$50,000 + equipment. Title: *“Mobile Phones for Location Sensing”*
- PI: Verizon 2007, Gift \$50,000. Title: *“Micro-Blog: Information Browsing and Searching ... ”*

Students

- Graduated PhDs:
 1. Ionut Constandache (joined Oracle Hypervisor Group, San Jose, May 2011)
 2. Justin Manweiler (joined IBM T. J. Watson Research Center, New York, Jan 2012)
 3. Souvik Sen (joined HP Labs, Palo Alto, Aug 2012)
 4. Xuan Bao (joined Samsung Research Labs, August 2013)
- Current PhDs:
 1. Mahanth Gowda (Degree expected in May 2015. Intern: Microsoft Research India in 2012)
 2. He Wang (Degree expected in May 2016. Intern: Microsoft Research Redmond in 2012)
 3. Nirupam Roy (Degree expected in May 2016.)
 4. Songchun Fan (Degree expected in May 2016. Intern: Bell Labs in 2012)
 5. Puneet Jain (Degree expected in May 2016. Intern: IBM T. J. Watson in 2012)

Media Coverage

- InSight: LA Times, CNET, San Francisco Chronicle, NewScientist, Engadget, Gizmag, Verge, ACM, etc.
- SleepWell: Wall Street Journal, Washington Post, Scientific American, Engadget, Slashdot, PBS, etc.
- PhonePoint Pen: Scientific American, Guardian UK, Slashdot, ABCNews, MSN, IndiaTimes, etc.
- SurroundSense: Scientific American, NSF, ACM TechNews, Yahoo News, Chronicle, etc.

Publications

1. I am a Smartphone and I can Tell my Users Walking Direction
Nirupam Roy, He Wang, Romit Roy Choudhury
ACM MobiSys 2014
2. Injecting Life into Toys
Songchun Fan, Hyojeong Shin, Romit Roy Choudhury
ACM HotMobile 2014
3. AccelPrint: Imperfections of Accelerometers Make Smartphones Trackable
Sanorita Dey, Nirupam Roy, Wenyan Xu, Romit Roy Choudhury, Srihari Nelakuditi
NDSS 2014
4. Scalable Social Analytics for Live Viral Event Prediction
Puneet Jain, Justin Manweiler, Arup Acharya, Romit Roy Choudhury
ICWSM 2014

5. Your Reactions Suggest You Like the Movie: Automatic Content Rating using Reaction Sensing
Xuan Bao, Songchun Fan, Romit Roy Choudhury, Alex Varshavsky, Kevin Li
ACM UbiComp 2013
6. If You See Something, Swipe towards It: Crowdsourced Event Localization,
Wentao Ouyang, Animesh Srivastava, Romit Roy Choudhury, Merideth Addicott, Francis McClernon
ACM UbiComp 2013
7. Cooperative Packet Recovery in Enterprise WLANs
Mahanth Gowda, Souvik Sen, Romit Roy Choudhury, Sung-Ju Lee
IEEE Infocom 2013
8. Predicting Length of Stay at WiFi Hotspots
Justin Manweiler, Naveen Santhapuri, Romit Roy Choudhury, Srihari Nelakuditi
IEEE Infocom 2013
9. QuickSense: Fast and Energy Efficient Channel Sensing for Dynamic Spectrum Access
Sungro Yoon, Erran Li, Soung Liew, Romit Roy Choudhury, Injong Rhee, Kun Tan
IEEE Infocom 2013
10. DataSpotting: Exploiting Naturally Clustered Mobile Devices to Offload Cellular Traffic
Xuan Bao, Yin Lin, Uichin Lee, Ivica Rimac, Romit Roy Choudhury
IEEE Infocom (Mini Conference) 2013
11. The Case for Psychological Computing
Xuan Bao, Mahanth Gowda, Ratul Mahajan, Romit Roy Choudhury
ACM HotMobile 2013.
12. Recognizing Humans without Face Recognition
He Wang, Xuan Bao, Romit Roy Choudhury, Srihari Nelakuditi
ACM HotMobile 2013
13. TagSense: Automatically Captioning Pictures using Smartphones
Chuan Qin, Xuan Bao, Romit Roy Choudhury, Srihari Nelakuditi
IEEE Transactions on Mobile Computing, Feb 2013
14. Helping Mobile Apps Bootstrap with Fewer Users
Xuan Bao, Aman Kansal, David Chu, Romit Roy Choudhury, Victor Bahl, Alec Wolman
ACM UbiComp 2012
15. No Need to War-Drive: Unsupervised Indoor Localization
He Wang, Souvik Sen, Ahmed Elgohary, M. Farid, Moustafa Youssef, Romit Roy Choudhury
ACM MobiSys 2012
16. Spot Localization using PHY Layer Information
Souvik Sen, Bozidar Radunovic, Romit Roy Choudhury
ACM MobiSys 2012
17. Satellites in Our Pockets: An Object Positioning System using Smartphones
Justin Manweiler, Romit Roy Choudhury
ACM MobiSys 2012
18. TapSense: Your Finger Taps have Fingerprints
Emiliano Miluzzo, Alex Varshavsky, Suhrid Balakrishnan, Romit Roy Choudhury
ACM MobiSys 2012
19. RxIP: Monitoring the Health of Home Wireless Networks
Justin Manweiler, Peter Franklin, Romit Roy Choudhury
IEEE Infocom 2012

20. SpinLoc: Spin Once to Know Your Location
Souvik Sen, Romit Roy Choudhury, Srihari Nelakuditi
ACM HotMobile 2012
21. Avoiding the Rush Hours: WiFi Energy Management via Traffic Isolation
J. Manweiler, R. Roy Choudhury
IEEE Transactions on Mobile Computing, 2012.
22. Successive Interference Cancellation: Carving out MAC Layer Opportunities
Souvik Sen, Romit Roy Choudhury, Srihari Nelakuditi
IEEE/ACM Transactions on Mobile Computing, 2012
23. Carrier Sense Multiple Access with Collision Notification
Souvik Sen, Romit Roy Choudhury, Srihari Nelakuditi
IEEE/ACM Transactions on Networking, 2012
24. Precise Indoor Localization using PHY Layer Information
Souvik Sen, Bozidar Radunovic, Romit Roy Choudhury, Tom Minka
ACM Hotnets 2011
25. No Time to Countdown: Backing Off in the Frequency Domain
Souvik Sen, Romit Roy Choudhury, Srihari Nelakuditi
ACM MobiCom 2011
26. Avoiding the Rush Hours: WiFi Energy Management for Mobile Devices
Justin Manweiler, Romit Roy Choudhury
ACM MobiSys 2011, Nominated for Best Paper Award
27. TagSense: A Smartphone based Approach to Automatic Image Tagging
Chuan Qin, Xuan Bao, Romit Roy Choudhury, Srihari Nelakuditi
ACM MobiSys 2011
28. Using Mobile Phones to Write in Air
Sandip Agrawal, Ionut Constandache, Sharavan Gaonkar, Romit Roy Choudhury
ACM MobiSys 2011
29. SwitchBoard: A Matchmaking System for Multiplayer Mobile Games
Justin Manweiler, Sharad Agrawal, Ming Zhang, Romit Roy Choudhury, Victor Bahl
ACM MobiSys 2011
30. PeerCast: Improving Link Layer Multicast through Cooperative Relaying
Jie Xiong, Romit Roy Choudhury
IEEE Infocom 2011
31. The Case for Context-Aware Compression
Xuan Bao, T. Narayan, A. Sani, W. Richter, R. Roy Choudhury, L. Zhong, M. Satyanarayanan
ACM Hotmobile 2011
32. Order Matters: Transmission Reordering in Wireless Networks
Justin Manweiler, Naveen Santhapuri, Souvik Sen, Romit Roy Choudhury, Srihari Nelakuditi
IEEE/ACM Transactions on Networking, 2011
33. Listen (on the Frequency Domain) Before You Talk
Souvik Sen, Romit Roy Choudhury, Srihari Nelakuditi
ACM Hotnets 2010

34. Successive Interference Cancellation: A Back-of-the-Envelope Perspective
Souvik Sen, Naveen Santhapuri, Romit Roy Choudhury, Srihari Nelakuditi
ACM Hotnets 2010
35. "Did You See Bob?": Human Localization using Mobile Phones
Ionut Constandache, Xuan Bao, Martin Azizyan, Romit Roy Choudhury
ACM MobiCom 2010
36. CSMA/CN: Carrier Sense Multiple Access with Collision Notification
Souvik Sen, Romit Roy Choudhury, Srihari Nelakuditi
ACM MobiCom 2010
37. MoVi: Mobile Phone based Video Highlights via Collaborative Sensing
Xuan Bao, Romit Roy Choudhury
ACM MobiSys 2010
38. CBAR: Constellation Based Rate Adaptation in Wireless Networks
Souvik Sen, Naveen Santhapuri, Romit Roy Choudhury, Srihari Nelakuditi
Usenix NSDI 2010
39. Towards Mobile Phone Localization without War-Driving
Ionut Constandache, Romit Roy Choudhury, Injong Rhee
IEEE Infocom 2010
40. Modeling Broadcasting using Directional Antennas in DTNs as an Epidemic Dynamics
F. Peruani, A. Maiti, S. Sadhu, H. Chate, R. Roy Choudhury, N. Ganguly
IEEE JSAC (Journal on Selected Areas of Communication), 2010
41. P2DAP: Detecting Sybil Attacks in Vehicular Ad Hoc Networks
Tong Zhou, Romit Roy Choudhury, Krish Chakrabarty, Peng Ning
IEEE JSAC (Journal on Selected Areas of Communication), 2010
42. Breaking Away from Collision Avoidance: Towards Collision Detection in Wireless Networks
Souvik Sen, Naveen Santhapuri, Romit Roy Choudhury, Srihari Nelakuditi
ACM Hotnets 2009
43. Order Matters: Transmission Reordering in Wireless Networks
J. Manweiler, N. Santhapuri, S. Sen, R. Roy Choudhury, S. Nelakuditi, K. Munagala
ACM MobiCom 2009
44. Hiding Stars with Fireworks: Location Privacy through Camouflage
J. Meyerowitz, R. Roy Choudhury
ACM MobiCom 2009
45. SurroundSense: Mobile Phone Localization via Ambience Fingerprinting
M. Azizyan, I. Constandache, R. Roy Choudhury
ACM MobiCom 2009
46. Realtime Location Privacy Via Mobility Prediction: Creating Confusion at Crossroads
Joseph Meyerowitz, Romit Roy Choudhury
ACM Hotmobile 2009
47. EnLoc: Energy Efficient Localization for Mobile Phones
Ionut Constandache, Shravan Gaonkar, Matt Sayler, Romit Roy Choudhury, Landon Cox
IEEE Infocom 2009, Mini-conference
48. VUPoints: Collaborative Sensing and Video Recording through Mobile Phones
Xuan Bao, Romit Roy Choudhury
ACM MobiHeld 2009 (with ACM Sigcomm)

49. PhonePoint Pen: Using Mobile Phones to Write in Air
Sandip Agrawal, Ionut Constandache, Shravan Gaonkar, Romit Roy Choudhury
ACM MobiHeld 2009 (with ACM Sigcomm)

50. Message in Message (MIM): A Case for Reordering Transmissions in Wireless Networks
N. Santhapuri, J. manweiler, S. Sen, R. Roy Choudhury, S. Nelakuditi, and K. Munagala
ACM Hotnets 2008

51. Micro-Blog: Sharing and Querying Content through Mobile Phones and Social Participation
Shravan Gaonkar, Jack Li, Romit Roy Choudhury, Landon Cox, Al Schmidt
ACM MobiSys 2008

52. Link Layer Multicast using Smart Antennas: No Client Left Behind
Souvik Sen, Xiong Jie, Rahul Ghosh, Romit Roy Choudhury
IEEE ICNP 2008

53. MAC-Layer Capture: A Problem in Wireless Networks Using Beamforming Antennas,
Romit Roy Choudhury, Nitin Vaidya,
IEEE SECON 2007

54. Designing a Rate-Based Transport Protocol for Wired-Wireless Networks,
Shravan Gaonkar, Romit Roy Choudhury, L. Magalhaes, Robin Kravets,
IEEE Broadnets 2007

55. Privacy-Preserving Detection of Sybil Attacks in Vehicular Ad Hoc Networks,
Tong Zhou, Romit Roy Choudhury, Peng Ning, Krish Chakrabarty,
Mobiquitous 2007

56. On Designing MAC Protocols for Wireless Networks using Beamforming Antennas
Romit Roy Choudhury, Nitin Vaidya
IEEE Transactions of Mobile Computing (TMC), May, 2006.

57. Smart Gossip: An Adaptive Gossip-based Broadcasting Service for Sensor Networks
Romit Roy Choudhury, Pradeep Kyasanur, Indranil Gupta
IEEE MASS 2006, *Nominated for Best Paper Award*

58. Brownian Gossip: Exploiting Node Mobility for Diffusing Information in Wireless Networks,
Romit Roy Choudhury
Workshop on Stochasticity in Distributed Systems (StoDis), December, 2005.

59. MARP: A Multi-Agent Based Routing Protocol for Mobile Ad Hoc networks
Romit Roy Choudhury, S. Bandyopadhyay and K. Paul
Journal of Autonomous Agents and Multi-Agent Systems - Kluwer Publishers, 2004.

60. Deafness: A MAC Problem in Ad Hoc Networks when using Directional Antennas
Romit Roy Choudhury, Nitin Vaidya
IEEE ICNP 2004

61. MAC-Layer Anycasting in Wireless Ad Hoc Networks
Romit Roy Choudhury, Nitin Vaidya
ACM Hotnets 2003

62. Impact of Directional Antennas on Ad Hoc Routing
Romit Roy Choudhury, Nitin Vaidya
IFIP PWC 2003, *Best Paper Award*

63. Using Directional Antennas for Medium Access Control in Ad Hoc Networks
Romit Roy Choudhury, X. Yang, Ram Ramanathan and Nitin Vaidya
ACM MobiCom 2002

Contact

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