

AHMAD RAHMATI

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EDUCATION

- **Dept of Electrical and Computer Engineering, Rice University, Houston, TX**
Ph.D. in Computer Engineering, 2008 – Present, M.Sc., 2005 – 2008. Adviser: Prof. Lin Zhong
Ph.D. Thesis: Context in Mobile System Design: Characterization, Theory, and Implications
- **Dept of Computer Engineering, Sharif University of Technology, Tehran, Iran**
B.S. in Computer Engineering (Hardware), 2000 – 2004. Thesis adviser: Prof. Saeed Bagheri

RESEARCH INTERESTS

- Mobile, embedded, and wireless system design and applications; Context-aware computing through sensing and statistical learning; System power analysis and optimization; Pervasive health; Human factors and HCI.

PUBLICATIONS

- **Ahmad Rahmati**, Clayton Shepard, Chad Tossell, Lin Zhong, Phillip Kortum, Angela Nicoara, and Jatinder Singh, "Seamless Flow Migration on Smartphones without Network Support", *under review*.
- Chad Tossell, Phillip Kortum, Clayton Shepard, **Ahmad Rahmati**, and Lin Zhong, "An Empirical Analysis of Smartphone Personalization: Measurement and User Variability", *under review*. (about measuring phone personalization and exploring its user differences)
- Chad Tossell, Phillip Kortum, Clayton Shepard, **Ahmad Rahmati**, and Lin Zhong, "Getting real: A naturalistic methodology for using smartphones to collect mediated communications ", *under review*. (about the validity of in-device logging as a research methodology)
- **Ahmad Rahmati** and Lin Zhong, "Studying smartphone usage: lessons from a four-month field study", *under review*. (about a field study of 12 Windows Mobile phones)
- Chad Tossell, Phillip Kortum, **Ahmad Rahmati**, Clayton Shepard, and Lin Zhong, "Characterizing web use on smartphones", in *ACM SIGCHI Conf. Human Factors in Computing Systems (CHI)*, May 2012
- Chad Tossell, Phillip Kortum, Clayton Shepard, Laura Barg-Walkow, **Ahmad Rahmati**, and Lin Zhong, "A Longitudinal Study of Emoticon Use in Text Messaging from Smartphones", in *Computers in Human Behavior*, March 2012
- Hang Yu, **Ahmad Rahmati**, Ardalan Amiri Sani, Lin Zhong, Jehan Wickramasuriya, and Venu Vasudevan, "Data broadcasting using mobile FM radio: design, realization and application", in *ACM Int. Conf. Ubiquitous Computing (UbiComp)*, September 2011.
- Chad Tossell, Jo Jardina, Phillip Kortum, Camille Peres, Clayton Shepard, **Ahmad Rahmati**, and Lin Zhong, "Effects of Socioeconomic diversity on iPod Touch Device Use in Real-World Environments", in *Proc. Human Factors and Ergonomics Society Annual Meeting (HFES)*, September 2011.
- **Ahmad Rahmati**, Clayton Shepard, Chad Tossell, Mian Dong, Zhen Wang, Lin Zhong, and Phillip Kortum, "Tales of 34 iPhone Users: How they change and why they are different", *Rice Technical Report TR-2011-0624*.
- Xiaoming Chen, Zhendong Zhao, **Ahmad Rahmati**, Ye Wang, and Lin Zhong, "SaVE: Sensor-assisted motion estimation for efficient H.264/AVC encoding", in *Proc. IEEE Trans. Circuits and Systems for Video Technology (TCSVT)*, March 2011
- **Ahmad Rahmati** and Lin Zhong, "Context-Based Network Estimation for Energy-Efficient Ubiquitous Wireless Connectivity", in *IEEE Transactions on Mobile Computing*, January 2011 (*Issue's Spotlight Paper, with substantial new results on network condition prediction*).
- Clayton Shepard, **Ahmad Rahmati**, Chad Tossell, Lin Zhong, and Phillip Kortum, "LiveLab: Measuring Wireless Networks and Smartphone Users in the Field", in *ACM SIGMETRICS Perform. Eval. Rev.*, vol. 38, no. 3, December 2010.
- Yunxin Liu, **Ahmad Rahmati**, Yuanhe Huang, Hyukjae Jang, Lin Zhong, Yongguang Zhang, and Shensheng Zhang, "Design, realization, and evaluation of xShare for impromptu sharing of mobile phones", in *IEEE Transactions on Mobile Computing*, December 2010 (*Issue's Spotlight Paper*).
- Xiaozhu Lin, **Ahmad Rahmati**, and Lin Zhong, "Dandelion: A framework for transparently programming phone-centered wireless body sensor applications for health", in *ACM Wireless Health*, October 2010
- Chad Tossell, Phillip Kortum, Clayton Shepard, **Ahmad Rahmati**, and Lin Zhong, "Assessing the Performance of Common Tasks on Handheld Mobile Computers", in *Proc. Human Factors and Ergonomics Society (HFES)*, September 2010.

- Bo Han, **Ahmad Rahmati**, and Bhojan Anand, "Report of HotMobile 2010", in *IEEE Pervasive Computing*, July 2010.
- Clayton Shepard, **Ahmad Rahmati**, Chad Tossell, Lin Zhong, and Phillip Kortum, "LiveLab: Measuring Wireless Networks and Smartphone Users in the Field", in *Proc. Wrkshp. Hot Topics in Measurement & Modeling of Computer Systems (HotMetrics)*, June 2010.
- **Ahmad Rahmati**, Lin Zhong, Venu Vasudevan, Jehan Wickramasuriya, and Daniel Stewart, "Enabling Pervasive Mobile Applications with the FM Radio Broadcast Data System", in *Proc. 10th ACM/SIG Int. Wrkshp. Mobile Computing Systems and Applications (HotMobile)*, February 2010.
- Xiaoming Chen, Zhendong Zhao, **Ahmad Rahmati**, Ye Wang, and Lin Zhong, "Sensor-assisted motion estimation for efficient H.264/AVC video encoding", in *Proc. ACM Multimedia*, October 2009.
- **Ahmad Rahmati** and Lin Zhong, "Human-battery interaction on mobile phones", in *Pervasive and Mobile Computing Journal*, vol 5, no. 5, October 2009.
- **Ahmad Rahmati** and Lin Zhong, "A longitudinal study of non-voice mobile phone usage by teens from an underserved urban community", Technical Report 0515-09, Rice University, May 2009
- Yunxin Liu, **Ahmad Rahmati**, Yuanhe Huang, Hyukjae Jang, and Lin Zhong, "xShare: supporting impromptu sharing of mobile phones", in *Proc. ACM/USENIX Int. Conf. Mobile Systems, Applications, and Services (MobiSys)*, June 2009.
- **Ahmad Rahmati**^{*}, Clayton Shepard^{*}, and Lin Zhong, "NoShake: Content Stabilization for Shaking Screens of Mobile Devices", in *Proc. IEEE Int. Conf. Pervasive Computing and Communication (PerCom)*, March 2009. ^{*}Equal contribution.
- Guang-ming Hong, **Ahmad Rahmati**, Ye Wang, and Lin Zhong, "SenseCoding: Accelerometer-assisted motion estimation for efficient video encoding", in *Proc. ACM Multimedia*, October 2008.
- Nilanjan Banerjee, **Ahmad Rahmati**, Mark Corner, Sami Rollins, and Lin Zhong, "Users and batteries: interactions and adaptive energy management in mobile systems", in *Proc. Int. Conf. Ubiquitous Computing (UbiComp)*, September 2007.
- **Ahmad Rahmati** and Lin Zhong, "Usability evaluation of a commercial Pocket PC phone: A pilot study", in *Proc. ACM Int. Conf. Mobile Technology, Applications and Systems (Mobility)*, September 2007.
- **Ahmad Rahmati**, Angela Qian, and Lin Zhong, "Understanding human-battery interaction on mobile phones", in *Proc. ACM Int. Conf. Human Computer Interaction with Mobile Devices and Services (MobileHCI)*, September 2007 (*MobileHCI Best Paper Award*).
- **Ahmad Rahmati**, Matti Hiltunen, Lin Zhong, and Rittwik Jana, "Reliability techniques for RFID-based object tracking applications", in *Proc. IEEE Int. Conf. Dependable Systems & Networks (DSN)*, June 2007.
- **Ahmad Rahmati** and Lin Zhong, "Context-for-Wireless: Context-sensitive energy-efficient wireless data transfer", in *Proc. ACM/USENIX Int. Conf. Mobile Systems, Applications, & Services (MobiSys)*, June 2007.

PATENTS

- **Ahmad Rahmati**, et. al. "A System for Heterogeneous Network Access on Devices with One or Multiple Network Interfaces", patent submitted, September 2010.
- **Ahmad Rahmati**, et. al. "Resumption Proxy", patent submitted, September 2010.
- **Ahmad Rahmati**, et. al. "Sensor-Assisted Motion Estimation For Efficient Video Encoding", US Patent 20100079605, September 28, 2009, provisional filed September 29, 2008.

PROFESSIONAL EXPERIENCE

- **Rice University, Houston, TX** January 2006 – Now
Research Assistant, Advisor: Prof. Lin Zhong
- **Deutsche Telekom R&D Lab USA, Los Altos, CA** Nov 2009 – March 2010
Summer Research Intern, working on enabling and using multiple networks on mobile devices
Supervisors: Dr. Jatinder Singh and Dr. Angela Nicoara
- **Motorola Labs, Schaumburg, IL** May – August 2008
Summer Research Intern, working on using RDS to transfer data and enable social networking on FM radio
Supervisors: Dr. Jehan Wickramasuriya and Dr. Daniel Stewart
- **AT&T Labs Research - Shannon Laboratory, Florham Park, NJ** June – August 2006
Summer Research Intern, working on RFID reliability and object tracking
Supervisors: Dr. Matti Hiltunen and Dr. Rittwik Jana
- **Resaneh Pouya Co., Tehran, Iran** 2003 –2005
The Telecine Project: Designing and manufacturing a device that digitized movie film to enable computerized editing. My responsibilities included designing and fabricating the electronic systems and computer interface.

- **Iran Center for Film Industries Inc., Tehran, Iran** Spring – Fall 2004
Movie Audio Synchronizer: developed a hardware / software solution to play digital audio instead of a synchronous driven reel tape while remaining in sync over a long stretch of film.

TEACHING EXPERIENCE

- **Dept of Electrical and Computer Engineering, Rice University, Houston, TX** 2006 – 2008
TA for Mobile & embedded system design and applications (ELEC424)
- **Dept of Computer Engineering, Sharif University of Technology, Tehran, Iran** 2002 – 2005
Instructor for Digital Electronics Lab, Digital System Design (FPGA) Lab, and Electronics Circuits Lab
TA for Computer Networks, Computer Architecture, Electronic Circuits, Computer Structure and Language, and Electric Circuits
- **Tehran Allameh Helli High School, NODET, Tehran, Iran** 2001 - 2002
Instructor for the Honors Physics Lab

HONORS & AWARDS

- **Twice, Spotlight Paper of the IEEE Transactions on Mobile Computing**
December 2010 issue and January 2011 Issue
- **MobiSys Student Travel Grants**
ACM / USENIX Int. Conf. on Mobile Systems, Applications, and Services (MobiSys), 2007 and 2008
- **ACM MobileHCI Best Paper Award**
ACM Int. Conf. on Human Computer Interaction with Mobile Devices and Services, September 2007
- **Rice University Graduate Fellowship**
Department of Electrical and Computer Engineering, Rice University, 2005
- **Iranian Nationwide M.Sc. Entrance Contests (Konkoor)**
3rd place in Computer Engineering (Hardware) and 3rd place in IT (Networks), 2004
- **12th Iranian National Physics Olympiad**
Bronze Medal, 1999
- **Member of the National Organization for Development of Exceptional Talents (NODET)**
Attended the Tehran Allameh Helli High & Middle Schools, each after a nationwide contest, 1993 – 2000

PRESENTATIONS & DEMONSTRATIONS

- **MobiCom Demo Session, September 2010**
Mobile TCP usage characteristics and the feasibility of network migration without infrastructure support
- **PerCom Demo Session, March 2009**
NoShake: Content Stabilization for Shaking Screens of Mobile Devices
- **MobiSys Demo Session, June 2008**
NoShake: Reducing Perceived Shake on Mobile Displays
- **Texas Regional Human Factors and Ergonomics Society Conference, April 2008**
Poster with S. Thomas and R. Evans, “User performance on the iPhone touchscreen keyboard”
- **MobiSys Demo Session, June 2007**
OrbitECG: Mobile phone-based ambulatory wearable ECG monitoring
- **Rice Affiliates Poster Session, September 2006**
Extending the interfacing capabilities of mobile systems with a wireless body-area network
- **TI Developers Conference, March 2006**
Poster, “Bluetooth based body sensor network platform for physiological diary applications”
- **Nokia-Rice Workshop, February 2006**
Making phones sensitive (Student competition finalist)

SKILLS

- PC and Mobile platform development (C++, C#, Java, SQL, PHP, Perl, Visual Studio, Eclipse, Windows, Linux, Windows Mobile, Android)
- Microcontrollers and embedded systems (TI MSP430, Microchip PIC, Motorola/Freescale 68000, Intel 8051)
- Bluetooth application development
- RFID systems and development
- Print-circuit board (PCB) design and prototyping (Eagle, Protel)
- Digital systems development (Verilog HDL, Max+Plus/Quartus, Modelsim, LabView)
- Computing environments (MATLAB, R)