

AHMAD RAHMATI

Rice University, Dept. of ECE, Duncan Hall 3038
6100 Main Street, MS-366
Houston, TX 77005

Web: <http://ahmad.rahmati.com>
E-mail: my_last_name@rice.edu
Fax: 713-348-6192

EDUCATION

- **Dept of Electrical and Computer Engineering, Rice University, Houston, TX**
Ph.D. in Computer Engineering, 2008 – Present, M.Sc. in Computer Engineering, 2005 – 2008
M.Sc. Thesis: Context for System Resource Management: An Application in Wireless Data Management
Advisor: Prof. Lin Zhong
- **Dept of Computer Engineering, Sharif University of Technology, Tehran, Iran**
B.S. in Computer Engineering (Hardware), 2000 – 2004.
Thesis advisor: Prof. Saeed Bagheri

RESEARCH INTERESTS

- Mobile, embedded, and wireless system design and applications
- System power analysis and optimization
- Human-computer interaction

PUBLICATIONS AND PATENTS

- **Ahmad Rahmati** and Lin Zhong, "Context-Based Network Estimation for Energy-Efficient Ubiquitous Wireless Connectivity", to appear in *IEEE Transactions on Mobile Computing*.
- **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", to appear in *Proc. ACM Multimedia*, 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
- **Ahmad Rahmati** and Lin Zhong, "Human-battery interaction on mobile phones", in press, *Elsevier Pervasive and Mobile Computing Journal*, 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.
- **Ahmad Rahmati**, et. al. "Sensor-Assisted Motion Estimation For Efficient Video Encoding", US Patent 20100079605, filed (12/568,078) September 28, 2009. Provisional (61/101,092) September 29, 2008.
- 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 (MobiHCI)*, September 2007 (received **Best Paper Award**).
- **Ahmad Rahmati**, Matti Hiltunen, Lin Zhong, and Rittwik Jana, "Reliability techniques for RFID-based object tracking applications", in *Proc. IEEE/IFIP Int. Conf. Dependable Systems and 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, and Services (MobiSys)*, June 2007.

HONORS & AWARDS

- **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 (MobileHCI), September 2007
- **Rice University Graduate Fellowship**
Department of Electrical and Computer Engineering, Rice University, 2005
- **Iranian Nationwide M.Sc. Entrance Contests (Konkour)**
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

RESEARCH PROJECTS

- **Context for System Resource Management**
We began with studying the use of context information to reduce wireless energy consumption. Our work on Context-for-Wireless was published in *MobiSys'07*. We then investigated how context can drive system energy management, in collaboration with Prof. Mark Corner. We have also investigated RFID as a new sensing solution in collaboration with AT&T Labs Research.
- **Holistic Usability of Mobile Devices and Services**
This project studies the usability of mobile devices for their combined value to the user through long-term field trials. It employs focus groups, interviews, and in-situ logging to gain both qualitative and quantitative insights. One of the research foci is how mobile users deal with the limited battery lifetime, which received the best paper award from *MobileHCI'07*.
- **Rice Orbit Platform (<http://www.recg.org/orbit>)**
I am the lead student for the Rice Orbit Platform, which aims at providing custom sensing capability and innovative interaction with mobile systems through Bluetooth body-area devices. The platform also serves as a real-life test-bed for research on mobile energy and data management. In the platform, low-power Orbit Sensors serve an Internet-enabled Windows Mobile phone. We have prototyped multiple sensing and interfacing devices based on the Orbit Sensor.

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 using RDS to transfer data and enable social networking on FM radio
Supervisors: Dr. Angela Nicoara and Dr. Jatinder Singh
- **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. Daniel Stewart and Dr. Jehan Wickramasuriya
- **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** Summer 2003 – Summer 2005
The Telecine Project: digitizing movie film to enable computerized editing. My responsibilities included designing and fabricating the electronic systems and computer interface of the apparatus
- **Iran Center for Film Industries Inc., Tehran, Iran** Spring 2004 – Fall 2004
Movie Audio Synchronizer: developing 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 – Now
TA for ELEC424; Mobile & embedded system design and applications
- **Dept of Computer Engineering, Sharif University of Technology, Tehran, Iran** 2000 – 2005
Instructor for three labs in digital and electronic systems. TA for five other courses

PRESENTATIONS & DEMONSTRATIONS

- **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, Linux, Visual Studio, 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 design and simulation (Verilog HDL, MaxPlus/Quartus, Modelsim)
- Computing environments (MATLAB, R)