

ROOZBEH JAFARI

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Research Interests

Medical - Collaborative signal processing
Embedded Systems - Embedded system design and optimization
- Low-power architecture
- Wearable computing and body sensor networks
- Reconfigurable computing

Employment

Assistant Professor, 2007 UNIVERSITY OF TEXAS at Dallas, TX
Electrical Engineering Department

Academic Preparation

Post-doctorate 2006-2007 UNIVERSITY OF CALIFORNIA, Berkeley, CA
Department of Electrical Engineering and Computer Science
Ph.D. in Computer Science, 2006 UNIVERSITY OF CALIFORNIA, Los Angeles, CA
Department of Computer Science
M.S. in Computer Science, 2004 UNIVERSITY OF CALIFORNIA, Los Angeles, CA
Department of Computer Science
M.S. in Electrical Engineering, 2002 STATE UNIVERSITY OF NEW YORK, Buffalo, NY
Electrical Engineering Department
B.S. in Electrical Engineering, 2000 SHARIF UNIVERSITY OF TECHNOLOGY, Tehran, IRAN
Electrical Engineering Department

Publications

Book Chapter

- Foad Dabiri, **Roozbeh Jafari**, Ani Nahapetian, Majid Sarrafzadeh, "LIGHT-WEIGHT EMBEDDED SYSTEMS", In Computer Engineering Handbook, Edited by Vojin Oklobdzija, Taylor & Francis/CRC Press, to appear (authors in alphabetical order).

Journal Papers

- **Roozbeh Jafari**, Majid Sarrafzadeh, "AN EFFICIENT PLACEMENT AND ROUTING TECHNIQUE FOR FAULT-TOLERANT DISTRIBUTED EMBEDDED COMPUTING", accepted for publication in ACM Transactions on Embedded Computing Systems (TECS).
- **Roozbeh Jafari**, Hyduke Noshadi, Soheil Ghiasi, Majid Sarrafzadeh, "ADAPTIVE ELECTROCARDIOGRAM FEATURE EXTRACTION ON DISTRIBUTED EMBEDDED SYSTEMS", accepted for publications in IEEE Transactions on Parallel and Distributed Systems, Special Issue on High Performance Computational Biology (TPDS).
- Soheil Ghiasi, Po-kuan Huang, **Roozbeh Jafari**, "PROBABILISTIC DELAY BUDGETING FOR SOFT REAL-TIME APPLICATIONS", accepted for publication in IEEE Transactions on VLSI (TVLSI), to appear.
- Philip Brisk, Foad Dabiri, **Roozbeh Jafari**, Majid Sarrafzadeh, "OPTIMAL REGISTER SHARING FOR CFG SYNTHESIS IN SSA FORM", accepted for publication in IEEE Transactions on CAD (TCAD), to appear.
- **Roozbeh Jafari**, Foad Dabiri, Philip Brisk, Majid Sarrafzadeh, "RECONFIGURABLE FABRIC VEST FOR FATAL HEART DISEASE PREVENTION", accepted for publication in Journal of Embedded Computing (JEC), to appear.
- Soheil Ghiasi, Elahesh Bozorgzadeh, Po-kuan Huang, **Roozbeh Jafari**, Majid Sarrafzadeh, "A UNIFIED THEORY OF TIMING BUDGET MANAGEMENT", accepted for publication in IEEE Transactions on Computer Aided Design (TCAD), to appear.

- **Roozbeh Jafari**, Foad Dabiri, Majid Sarrafzadeh, “ ϵ -OPTIMAL MINIMAL-SKEW BATTERY LIFETIME ROUTING IN DISTRIBUTED EMBEDDED SYSTEMS”, *Journal of Low Power Electronics (JOLPE)*, vol 1, no. 2, pp 97-107, September 2005.
- **Roozbeh Jafari**, Henry Fan, Majid Sarrafzadeh, “MICRO-SEQUENCER APPROACH SPEEDS RECONFIGURATION”, *Computers Off-The Shelf (COTS) Journal*, vol 5, no. 6, pp 49-55, June 2003.

Conference and Workshop Papers

- **Roozbeh Jafari**, Ruzena Bajcsy, Steven Glaser, Bruce Gnade, Marco Sgroi, Shankar Sastry, “PLATFORM DESIGN FOR HEALTH-CARE MONITORING APPLICATIONS”, Joint Workshop on High Confidence Medical Devices, Software, and Systems (HCMDS) and Medical Device Plug-and-Play (MD PnP) Interoperability, June 2007, Boston, MA..
- Tammara Massey, Foad Dabiri, **Roozbeh Jafari**, Hyduke Noshadi, Philip Brisk, William Kaiser, Majid Sarrafzadeh, “TOWARDS RECONFIGURABLE EMBEDDED MEDICAL SYSTEMS”, Joint Workshop on High Confidence Medical Devices, Software, and Systems (HCMDS) and Medical Device Plug-and-Play (MD PnP) Interoperability, June 2007, Boston, MA..
- **Roozbeh Jafari**, Soheil Ghiasi, Majid Sarrafzadeh, “MEDICAL EMBEDDED SYSTEMS” (**Tutorial**), International Embedded Systems Symposium (IESS), May-June 2007, Irvine, CA.
- **Roozbeh Jafari**, Wenchao Li, Ruzena Bajcsy, Steven Glaser, Shankar Sastry, “PHYSICAL ACTIVITY MONITORING FOR ASSISTED LIVING AT HOME”, International Workshop on Wearable and Implantable Body Sensor Networks (BSN), March 2007, Aachen, Germany.
- **Roozbeh Jafari**, Ani Nahapetian, V. Reggie Edgerton, Ruzena Bajcsy, Majid Sarrafzadeh, “RELIABILITY IN LIGHT-WEIGHT MEDICAL MONITORING PLATFORMS” (**Tutorial**), International Workshop on Wearable and Implantable Body Sensor Networks (BSN), March 2007, Aachen, Germany.
- Foad Dabiri, **Roozbeh Jafari**, Ani Nahapetian, Majid Sarrafzadeh, “A UNIFIED OPTIMAL VOLTAGE SELECTION METHODOLOGY FOR LOW-POWER SYSTEMS”, International Symposium on Quality Electronic Design (ISQED), March 2007, San Jose, CA.
- **Roozbeh Jafari**, Devin L. Jindrich, V. R. Edgerton, Majid Sarrafzadeh, “CMAS: CLINICAL MOVEMENT ASSESSMENT SYSTEM FOR NEUROMOTOR DISORDERS”, IEEE Biomedical Circuits and Systems Conference (BioCAS), November-December 2006, London, UK.
- Majid Sarrafzadeh, Foad Dabiri, **Roozbeh Jafari**, T. Massey, A. Nahapetian, “LOW POWER LIGHT-WEIGHT EMBEDDED SYSTEMS” (**Tutorial**), International Symposium on Low Power Electronics and Design (ISLPED), October 2006, Tegernsee, Germany, (2nd to 5th authors in alphabetical order).
- **Roozbeh Jafari**, Hyduke Noshadi, Soheil Ghiasi, Majid Sarrafzadeh, “ADAPTIVE MEDICAL FEATURE EXTRACTION FOR RESOURCE CONSTRAINED DISTRIBUTED EMBEDDED SYSTEMS”, The 1st IEEE International Workshop on Pervasive and Ubiquitous Health Care (UbiCare'06) in conjunction with PerCom, March 2006, Pisa, Italy.
- **Roozbeh Jafari**, Foad Dabiri, Majid Sarrafzadeh, “AN EFFICIENT PLACEMENT AND ROUTING TECHNIQUE FOR FAULT-TOLERANT DISTRIBUTED EMBEDDED COMPUTING”, The 11th IEEE International Conference on Embedded and Real-Time Computing Systems and Applications (RTCSA), August 2005, Hong Kong.
- **Roozbeh Jafari**, Foad Dabiri, Majid Sarrafzadeh, “CUSTOMED: A POWER OPTIMIZED CUSTOMIZABLE AND MOBILE MEDICAL MONITORING AND ANALYSIS SYSTEM”, ACM HCI Challenges in Health Assessment Workshop in conjunction with CHI 2005, April 2005, Portland, OR.
- **Roozbeh Jafari**, Seda Ogrenci Memik, Majid Sarrafzadeh, “QUICK RECONFIGURATION IN CLUSTERED MICRO-SEQUENCER”, IEEE International Parallel & Distributed Processing Symposium (IPDPS-RAW 2005), April 2005, Denver, CO.
- **Roozbeh Jafari**, Foad Dabiri, Philip Brisk, Majid Sarrafzadeh, “ADAPTIVE AND FAULT TOLERANT MEDICAL VEST FOR LIFE CRITICAL MEDICAL MONITORING”, the 20th ACM Symposium on Applied Computing (SAC), March 2005, Santa Fe, NM.
- Jennifer L. Wong, **Roozbeh Jafari**, Miodrag Potkonjak, “GATEWAY PLACEMENT FOR LATENCY AND ENERGY EFFICIENT DATA AGGREGATION”, Proceedings of the 29th Annual IEEE International Conference on Local Computer Networks (LCN'04). IEEE Computer Society, 2004, pp. 490-497.
- **Roozbeh Jafari**, Foad Dabiri, Majid Sarrafzadeh, “RECONFIGURABLE FABRIC VEST FOR FATAL HEART DISEASE PREVENTION”, The 3rd International Workshop on Ubiquitous Computing for Pervasive Healthcare Applications in conjunction with UbiComp'04 (UbiHealth'04), September 2004, Nottingham, UK.

- M. S. Sadri, N. Shams, M. Rahmaty, I. Hosseini, R. Changiz, S. Mortazavian, S. Kheradmand, **Roozbeh Jafari**, “AN FPGA BASED FAST FACE DETECTOR”, Global Signal Processing Expo & Conference (GSPx’04), July 2004, Santa Clara, CA.
- F. C. Chen, **Roozbeh Jafari**, et al., “RECONFIGURABLE FABRIC: AN ENABLING TECHNOLOGY FOR PERVASIVE MEDICAL MONITORING”, Communication Networks and Distributed Systems Modeling and Simulation Conference (CNDS), January 2004, San Diego, CA (authors in alphabetical order).
- Seda Ogrenci Memik, Gokhan Memik, **Roozbeh Jafari**, Eren Kursun, “GLOBAL RESOURCE SHARING FOR SYNTHESIS OF CONTROL DATA FLOW GRAPHS ON FPGAS”, ACM/IEEE Design Automation Conference (DAC), June 2003, Anaheim, CA.
- **Roozbeh Jafari**, Henry Fan, Majid Sarrafzadeh, “A PROGRAMMABLE SYSTEM WITH QUICK RECONFIGURATION”, Proceedings of DesignCon, January 2003, San Jose, CA.

Posters

- **Roozbeh Jafari**, Devin L. Jindrich, V. R. Edgerton, Majid Sarrafzadeh, “QUANTITATIVE ASSESSMENT OF NEUROMOTOR DISORDERS USING A WEARABLE SENSOR NETWORK”, Neuroscience ‘06, Symposium of Neuroscience, October 2006, Atlanta, GA.
- Robert C. LeMoyne, **Roozbeh Jafari**, “QUANTIFIED DEEP TENDON REFLEX DEVICE”, Neuroscience ‘06, Symposium of Neuroscience, October 2006, Atlanta, GA.
- Robert LeMoyne, **Roozbeh Jafari**, David Jea, Mani Srivastava, Majid Sarrafzadeh, "FULLY QUANTIFIED EVALUATION OF MYOTATIC STRETCH REFLEX", Neuroscience ‘05, Symposium of Neuroscience, November 2005, Washington DC (Abstract).
- **Roozbeh Jafari**, Andre Encarnacao, Azad Zahoory, Foad Dabiri, Hyduke Noshadi, Majid Sarrafzadeh, "WIRELESS SENSOR NETWORKS FOR HEALTH MONITORING", The 2nd ACM/IEEE International Conference on Mobile and Ubiquitous Systems (MobiQuitous), July 2005, San Diego. CA.
- **Roozbeh Jafari**, Foad Dabiri, B.K. Choi, Majid Sarrafzadeh, "EFFICIENT PLACEMENT AND ROUTING IN GRID-BASED NETWORKS", The 20th ACM Symposium on Applied Computing (SAC), March 2005, Santa Fe, NM.

Non-refereed Publications

- **Roozbeh Jafari**, “ENHANCEMENTS TO TESTABILITY ANALYSIS AND A NOVEL METHOD FOR TEST-POINT INSERTION IN DIGITAL CIRCUITS”, MS Thesis, State University of New York at Buffalo, January 2002.
- FC. Chen, **Roozbeh Jafari**, Eren Kursun, Vijay Raghunathan, Thomas Schoellhammer, Doug Sievers, Deborah Estrin, Glenn Reinman, Majid Sarrafzadeh, Mani Srivastava, Ben Wu, Yang Yang, “RECONFIGURABLE FABRIC: AN ENABLING TECHNOLOGY FOR PERVASIVE MEDICAL MONITORING”, Technical Report TR-030044, Computer Science Department, UCLA, September 2003.
- **Roozbeh Jafari**, Alberto Cerpa, Soheil Ghiasi, Majid Sarrafzadeh, “ON MINIMAL ENERGY SKEW ROUTING IN LOSSY WIRELESS SENSOR NETWORKS”, Technical Report TR-050056, Computer Science Department, UCLA, December 2005.

Patents

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- “METHOD FOR QUANTITATIVE ASSESSMENT OF NEUROMOTOR DISORDERS”, Provisional patent, Roozbeh Jafari, Devin Jindrich, V. Reggie Edgerton and Majid Sarrafzadeh.
 - “FULLY QUANTIFIED EVALUATION OF MYOTATIC STRETCH REFLEX”, Provisional patent, Robert LeMoyne, Roozbeh Jafari, Warren Grundfest and Majid Sarrafzadeh.

Professional Experience

Program Committee Member	BodyNets 2008 ISCAS 2007 DesignCon 2004 DesignCon 2005
Reviewer	IEEE Transactions on VLSI ACM Transactions on CAD ACM Transactions on Design Automation of Electronic Systems ACM Transactions on Embedded Computing Systems. Journal of Low Power Electronics

IEEE Pervasive Computing Magazine
IEEE/ACM International Parallel and Distributed Processing Symposium (IPDPS)
IEEE/ACM/IFIP International Conference on Hardware - Software Codesign and System Synthesis (CODES+ISSS)
IEEE/ACM Design Automation Conference (DAC)
IEEE International Conference on Computer Design (ICCD)

Membership IEEE (Computer Society) since 1999, ACM since 2002, Society of Neuroscience since 2006.

Work Experience

Research Assistant University of California, Los Angeles / CA
07/2002 – 06/2006
Computer Science Department
Embedded and Reconfigurable Lab (ER Lab)

Engineering Intern IBM Corporation, Endicott / NY
05/2001 – 08/2001
Electronic Design Automation department
VLSI Testing – Random Pattern Fault Analysis

Research Assistant State University of New York, Buffalo / NY
09/2000 – 01/2001
Electrical Engineering Department
Security, Privacy and Dependability Research Lab (SPIDER Lab).

System Engineer KCR Company (www.kavoshcom.com), Tehran / Iran
04/1999 – 07/2000
Designed and implemented an in-circuit tester for electronic ballast
Studied and simulated various ballast circuit, Adapted and modified the RF controller of 46/49MHz 25 channel cordless phone for 900 MHz CT1+ phone with 80 channels.

Engineering Intern Iran Telecommunication Research Center (ITRC), Tehran / Iran
06/1998 – 09/1998
Data error correction project for communication devices

Teaching Experience

**Teaching Highlight:
Course Development
and Design** Designed and developed a core course for undergraduate program in Computer Science department at UCLA with average enrollment of 300 students per year. This course entitled “CSM152B - Digital design project laboratory” involves students in design and implementation of cutting edge image processing algorithm on FPGA and PowerPC (Xilinx XUP prototype board). The course was entirely redesigned from scratch.

Teaching Fellow CSM152B: Digital design project laboratory
Fall '05/winter '06
Computer Sci. Dept.
UCLA

Teaching Fellow CS180: Introduction to Algorithms and Complexity Analysis
Fall '04
Computer Sci. Dept.
UCLA

Teaching Associate CS32: Introduction to Computer Science II / CSM152A: Digital Design lab
Winter '02/Spring '02
Computer Sci. Dept.
UCLA

Teaching Assistant EE353/EE353: Electronics Circuits lab
Spring '01/Fall '01
Electrical Eng Dept.
SUNY at Buffalo

**Xilinx Course
Certificates**

- Fundamentals of FPGA Design (8 hrs)
- Design for Performance (16 hrs)

- Xilinx University Program – Embedded Development Kit (EDK) (8 hrs)

Awards

- Best Teaching Assistant Award for 2005-2006 – Computer Science Dept., UCLA.
- UCLA Graduate Division Tutition Fellowship for 2005-2006.
- UCLA Graduate Division Fellowship for 2002-2003.
- 3rd prize poster presentation award at the annual research review of Computer Science Dept., UCLA, April 2002.
- Honored in National Computer Olympiad in 1994 and 1995, Tehran, Iran (was among 80 students selected nationwide).