ROOZBEH JAFARI

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Research Interests

Embedded System Design and Signal Processing

- Wearable computing, body sensor networks, wireless and mobile health
- Cyber physical systems
- Sensor and hardware design for light-based and bio-potential based wearable computers
- Signal processing for inertial, physiological & electroencephalography sensors
- Power and performance optimization techniques for wearable computers

Director: Embedded Signal Processing Lab (ESP)
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Academic Appointments

Associate Professor, 2015-present	TEXAS A&M UNIVERSITY, College Station, TX Biomedical Engineering Computer Science and Engineering Electrical and Computer Engineering
Associate Professor, 2013-2015	UNIVERSITY OF TEXAS at Dallas, TX Electrical Engineering
Assistant Professor, 2007-2013	UNIVERSITY OF TEXAS at Dallas, TX Electrical Engineering

Academic Preparation

Post-doctoral Fellowship 2006-2007	UNIVERSITY OF CALIFORNIA, Berkeley, CA Electrical Engineering and Computer Science, Adviser: Professor Ruzena Bajcsy
Ph.D. in Computer Science, 2006	UNIVERSITY OF CALIFORNIA, Los Angeles, CA Computer Science, Adviser: Professor Majid Sarrafzadeh
M.S. in Computer Science, 2004	UNIVERSITY OF CALIFORNIA, Los Angeles, CA Computer Science
M.S. in Electrical Engineering, 2002	STATE UNIVERSITY OF NEW YORK, Buffalo, NY Electrical Engineering
B.S. in Electrical Engineering, 2000	SHARIF UNIVERSITY OF TECHNOLOGY, Tehran, IRAN Electrical Engineering

Honors and Awards

- Andrew P. Sage Best Transactions Paper Award from IEEE Systems, Man and Cybernetics Society 2014
- NSF CAREER Award 2012
- Junior Faculty Research Award 2012, School of Engineering and Computer Science, UT-Dallas
- Best Paper Award, IEEE Real-Time & Embedded Technology & Applications Symp. (RTAS 2011)
- Best Teaching Assistant Award for 2005-2006, Computer Science Department, UCLA
- Graduate Division Fellowship 2002-2003, UCLA
- Honored in National Computer Olympiad in 1994 & 1995, Iran (among 80 students selected nationwide)

Publications

Book Chapters

BC7. Vitali Loseu, Jian Wu, Roozbeh Jafari, Mining Techniques for Body Sensor Network Data Repository, Edited by Edward Sazonov and Micheal Neuman, Wearable Sensors: Fundamentals, Implementation and Applications, Elsevier, 2014, ISBN 9780124186620.

BC6. Hassan Ghasemzadeh, Roozbeh Jafari, Power-Aware Communication in Body Area Networks, In Ambient Assisted Living: From Technology to Intervention, Edited by Nuno M. Garcia, Joel Rodrigues, Miguel Sales Dias, and Dirk Elias, Taylor and Francis/CRC Press, 2014, ISBN 9781439869840.

BC5. Hassan Ghasemzadeh, Roozbeh Jafari, Decision Tree Construction for Event Classification in Building Sensor Networks: From Design to Applications, Edited by Kris Iniewski, CRC Press, 2013, ISBN: 978-1-4665-6272-1.

BC4. Roozbeh Jafari, Hassan Ghasemzadeh, Eric Guenterberg, Vitali Loseu, Sarah Ostadabas, Human Bio-Kinematic Monitoring with Body Area Networks, In Wireless Body Area Networks: Technology, Implementation and Applications, Edited by Mehmet R. Yuce and Jamil Y. Khan, Pan Stanford Publishing, 2011, ISBN: 9789814316712.

BC3. Hassan Ghasemzadeh, Eric Guenterberg, Roozbeh Jafari, Lightweight Signal Processing for Wearable Body Sensor Networks, In Wearable Monitoring Systems, Edited by Annalisa Bonfiglio and Danilo D. Rossi, Springer, 2010, ISBN: 1441973834.

BC2. Tammara Massey, Foad Dabiri, Hyduke Noshadi, Philip Brisk, Roozbeh Jafari, Majid Sarrafzadeh, Reconfigurable Embedded Medical Systems, In Handbook of Research on Distributed Medical Informatics and E-Health, Edited by Antonio Coronato and Giuseppe De Pietro, IGI Global, 2008, ISBN: 1605660027.

BC1. Foad Dabiri, Roozbeh Jafari, Ani Nahapetian, Majid Sarrafzadeh, Light-weight Embedded Systems, In Computer Engineering Handbook, Edited by Vojin Oklobdzija, Taylor & Francis/CRC Press, 2008, ISBN: 0849386020.

Journal Papers

J31. Chen Chen, Roozbeh Jafari, Nasser Kehtarnavaz, A Real-Time Human Action Recognition System Using Depth and Inertial Sensor Fusion, IEEE Sensors Journal, Accepted for publication.

J30. Viswam Nathan, Roozbeh Jafari, Design Principles and Dynamic Front End Reconfiguration for Low Noise EEG Acquisition with Finger Based Dry Electrodes, IEEE Transactions on Biomedical Circuits and Systems (T-BioCAS), Accepted for publication.

J29. Simi Susan Thomas, Viswam Nathan, Chengzhi Zong, Karthikeyan Soundarapandian, Xiangrong Shi, Roozbeh Jafari, BioWatch: A Non-invasive Wrist-based Blood Pressure Monitor that Incorporates Training Techniques for Posture and Subject Variability, IEEE Journal of Biomedical and Health Informatics (J-BHI), Accepted for publication.

J28. Yuan Zou, Viswam Nathan, Roozbeh Jafari, Automatic Identification of Artifact-related Independent Components for Artifact Removal in EEG Recordings, IEEE Journal of Biomedical and Health Informatics (J-BHI), Accepted for publication.

J27. Chen Chen, Roozbeh Jafari, Nasser Kehtarnavaz, Improving Human Action Recognition Using Fusion of Depth Camera and Inertial Sensors, IEEE Transactions on Human-Machine Systems (THMS), Accepted for publication.

J26. Bobak Mortazavi, Hassan Ghasemzadeh, Roozbeh Jafari, Christian K. Roberts, Majid Sarrafzadeh, Context-Aware Data Processing to Enhance Quality of Measurements in Wireless Health Systems: An Application to MET Calculation of Exergaming Actions, IEEE Internet of Things Journal (IoT). Accepted for publication.

J25. Hassan Ghasemzadeh, Pasquale Panuccio, Simone Trovato, Giancarlo Fortino, and Roozbeh Jafari, Power-Aware Activity Monitoring Using Distributed Wearable Sensors, IEEE Transactions on Human-Machine Systems (THMS), vol. 44, no. 4, pp 537-544, August 2014.

J24. Kui Liu, Chen Chen, Nasser Kehtarnavaz, Roozbeh Jafari, Fusion of Inertial and Depth Sensor Data for Robust Hand Gesture Recognition, IEEE Sensors Journal (SJ), vol. 14, no. 6, pp 1898-1903, June 2014.

J23. Edward A. Lee, Jan Rabaey, David Blaauw, Prabal Dutta, Kevin Fu, Carlos Guestrin, Bjorn Hartmann, Roozbeh Jafari, Doug Jones, John Kubiatowicz, Vijay Kumar, Rahul Mangharam, Richard Murray, George Pappas, Kris Pister, Anthony Rowe, Alberto Sangiovanni-Vincentelli, Sanjit A. Seshia, Tajana Simunic Rosing, Ben Taskar, John Wawrzynek, David Wessel, The Swarm at the Edge of the Cloud, IEEE Design and Test (D&T), vol. 31, no. 3, pp 8-20, June 2014.

J22. Hassan Ghasemzadeh, Roozbeh Jafari, Ultra Low Power Signal Processing in Wearable Monitoring Systems: A Tiered Screening Architecture with Optimal Bit Resolution, ACM Transactions in Embedded Computing Systems (TECS), vol. 13, issue 1, no. 9, August 2013.

J21. Giancarlo Fortino, Roberta Giannantonio, Raffaele Gravina, Philip Kuryloski, Roozbeh Jafari, Enabling Effective Programming and Flexible Management of Efficient Body Sensor Network Applications, IEEE Transactions on Systems, Man, and Cybernetics--Part C: Applications and Reviews (TSMC), vol. 43, no. 1, pp 115-133, January 2013. **(Recipient of the 2014 Andrew P. Sage Best Paper Award)**

J20. Eric Guenterberg, Hassan Ghasemzadeh, Roozbeh Jafari, Automatic Segmentation and Recognition in Body Sensor Networks Using a Hidden Markov Model, ACM Transactions on Embedded Computing Systems (TECS), vol. 11, no. S2, pp 46:1-46:19, August 2012.

J19. Nikhil Raveendranathan, Stefano Galzarano, Vitali Loseu, Raffaele Gravina, Roberta Giannantonio, Marco Sgroi, Roozbeh Jafari, Giancarlo Fortino, From Modeling to Implementation of Virtual Sensors in Body Sensor Networks, IEEE Sensors Journal (SJ), vol. 12, no. 3, pp 583-593, March 2012.

J18. Vitali Loseu, Hassan Ghasemzadeh, Roozbeh Jafari, A Mining Technique Using N-grams and Motion Transcripts for Body Sensor Network Data Repository, Proceedings of the IEEE (PrIEEE), vol. 100, no. 1, pp 107-121, January 2012.

J17. Hassan Ghasemzadeh, Roozbeh Jafari, Coordination Analysis of Human Movements with Body Sensor Networks: A Signal Processing Model to Evaluate Baseball Swings, IEEE Sensors Journal Special Issue on Cognitive Sensor Networks (SJ), vol. 11, no. 3, pp 603-610, March 2011.

J16. Hassan Ghasemzadeh, Roozbeh Jafari, Physical Movement Monitoring using Body Sensor Networks: A Phonological Approach to Construct Spatial Decision Trees, IEEE Transactions on Industrial Informatics (TII), vol. 7, no. 1, pp 66-77, February 2011.

J15. Hassan Ghasemzadeh, Vitali Loseu, Roozbeh Jafari, Burst Communication by Means of Buffer Allocation in Body Sensor Networks: Exploiting Signal Processing to Reduce the Number of Transmissions, accepted for publication in IEEE Journal on Selected Areas in Communications Special Issue on Simple Wireless Sensor Networking Solutions (JSAC), vol. 28, no. 7, September 2010.

J14. Hassan Ghasemzadeh, Vitali Loseu, Roozbeh Jafari, Structural Action Recognition in Body Sensor Networks: Distributed Classification Based on String Matching, IEEE Transactions on Information Technology in BioMedicine Special Issue on Personal Health Systems (TITB), vol. 14, no. 2, pp 425-435, March 2010.

J13. Hassan Ghasemzadeh, Roozbeh Jafari, Balakrishnan Prabhakaran, A Body Sensor Network with Electromyogram and Inertial Sensors: Multi-Modal Interpretation of Muscular Activities, accepted for publication in IEEE Transactions on Information Technology in BioMedicine Special Issue on Affective and Pervasive Computing for Healthcare (TITB), vol. 14, no. 2, pp 198-206, March 2010.

J12. Eric Guenterberg, Allen Y. Yang, Hassan Ghasemzadeh, Roozbeh Jafari, Ruzena Bajcsy, S. Shankar Sastry, A Method for Extracting Temporal Parameters Based on Hidden Markov Models in Body Sensor Networks with Inertial Sensors, accepted for publication in IEEE Transactions on Information Technology in BioMedicine Special Issue on Wireless Health (TITB), vol. 13, no. 6, pp 1019-1030, November 2009.

J11. Roozbeh Jafari, Hassan Ghasemzadeh, Foad Dabiri, Ani Nahapetian, Majid Sarrafzadeh, An Efficient Placement and Routing Technique for Fault-tolerant Distributed Embedded Computing, ACM Transactions on Embedded Computing Systems (TECS), vol. 8, no. 4, pp 1-26, July 2009.

J10. Hassan Ghasemzadeh, Vitali Loseu, Roozbeh Jafari, Wearable Coach for Sport Training: A Quantitative Model to Evaluate Wrist-Rotation in Golf, Journal of Ambient Intelligence and Smart Environments Special Issue on Wearable Sensors (JAISE), vol. 1, no. 2, pp 173-184, April 2009.

J9. Allen Yang, Roozbeh Jafari, S. Shankar Sastry, Ruzena Bajcsy, Distributed Recognition of Human Actions Using Wearable Motion Sensor Networks, Journal of Ambient Intelligence and Smart Environments Special Issue on Wearable Sensors (JAISE), vol. 1, no. 2, pp 103-115, April 2009.

J8. Hassan Ghasemzadeh, Eric Guenterberg, Roozbeh Jafari, Energy-Efficient Information-Driven Coverage for Physical Movement Monitoring in Body Sensor Networks, IEEE Journal on Selected Areas in Communications Special Issue on Body Area Networks (JSAC), vol. 27, no. 1, pp 58-69, January 2009.

J7. Robert LeMoyne, Roozbeh Jafari, Foad Dabiri, Quantified Deep Tendon Reflex Device: Second Generation, Journal of Mechanics in Medicine and Biology, vol. 8, no. 1, pp 75-85, March 2008.

J6. Soheil Ghiasi, Elaheh Bozorgzadeh, Po-kuan Huang, Roozbeh Jafari, Majid Sarrafzadeh, A Unified Theory of Timing Budget Management, IEEE Transactions on Computer Aided Design (TCAD), vol. 25, no. 11, pp 2364-2375, November 2006.

J5. Roozbeh Jafari, Hyduke Noshadi, Soheil Ghiasi, Majid Sarrafzadeh, Adaptive Electrocardiogram Feature Extraction on Distributed Embedded Systems, IEEE Transactions on Parallel and Distributed Systems special issue on High Performance Computational Biology (TPDS), vol. 17, no. 8, pp 1-11, August 2006.

J4. Soheil Ghiasi, Po-kuan Huang, Roozbeh Jafari, Probabilistic Delay Budgeting for Soft Realtime Applications, IEEE Transactions on VLSI (TVLSI), vol. 14, no. 8, pp 843-953, August 2006.

J3. Philip Brisk, Foad Dabiri, Roozbeh Jafari, Majid Sarrafzadeh, Optimal Register Sharing for CFG Synthesis in SSA Form, IEEE Transactions on CAD (TCAD), vol. 25, no. 5, pp 772-779, May 2006.

J2. 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.

J1. 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

C88. Terrell Bennett, Nicholas Gans, Roozbeh Jafari, Multi-Sensor Data-Driven Synchronization Using Wearable Sensors, International Symposium on Wearable Computers (ISWC), September 7-11, Osaka, Japan.

C87. Chen Chen, Roozbeh Jafari, and Nasser Kehtarnavaz, UTD-MHAD: A Multimodal Dataset for Human Action Recognition Utilizing a Depth Camera and a Wearable Inertial Sensor, IEEE International Conference on Image Processing (ICIP), September 27-30, 2015, Quebec City, Canada.

C86. Zhen Xu, Chengzhi Zong, Roozbeh Jafari, Constructing Energy Expenditure Regression Model Using Heart Rate with Reduced Training Time, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 25-29, 2015, Milan, Italy.

C85. Viswam Nathan, Ilge Akkaya, Roozbeh Jafari, A Particle Filter Framework for the Estimation of Heart Rate from ECG Signals Corrupted by Motion Artifacts, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 25-29, 2015, Milan, Italy.

C84. Chengzhi Zong, Roozbeh Jafari, Robust Heart Rate Estimation Using Wrist-Based PPG Signals in the Presence of Intense Physical Activities, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 25-29, 2015, Milan, Italy.

C83. Rajesh Kuni, Yashaswini Prathivadi, Jian Wu, Terrell R. Bennett, Roozbeh Jafari, Exploration of Interactions Detectable by Wearable IMU Sensors. IEEE 12th Annual Body Sensor Networks Conference 2015 (BSN 2015), June 9-12, MIT, Cambridge, USA.

C82. Jian Wu, Zhongjun Tian, Lu Sun, Leonardo Estevez, Roozbeh Jafari, Real-time American Sign Language Recognition Using Wrist-worn Motion and Surface EMG Sensors. IEEE 12th Annual Body Sensor Networks Conference 2015 (BSN 2015), June 9-12, MIT, Cambridge, USA.

C81. Terrell R. Bennett, Nicholas Gans, Roozbeh Jafari, A Data-driven Synchronization Technique for Cyber-Physical Systems, 2nd International Workshop on the Swarm at the Edge of the Cloud, in conjunction with CPSWeek 2015, April 13-16, 2015, Seattle, WA, USA.

C80. Chengzhi Zong, Somok Mondal, Drew Hall, Roozbeh Jafari, Digitally Assisted Analog Front End Power Management Strategy via Dynamic Reconfigurability for Robust Heart Rate Monitoring, 7th Workshop on Adaptive and Reconfigurable Embedded Systems, in conjunction with CPSWeek 2015, April 13-16, 2015, Seattle, WA, USA.

C79. Javad Birjandtalab, Qingxue Zhang, Roozbeh Jafari, A Case Study on Minimum Energy Operation for Dynamic Time Warping Signal Processing in Wearable Computers, 4th International Workshop on the Impact of

Human Mobility on Pervasive Systems and Application (PerMoby) in conjunction with PerCom, 23–27 March 2015. St. Louis, MO.

C78. Chen Chen, Roozbeh Jafari, Nasser Kehtarnavaz, Action Recognition from Depth Sequences Using Depth Motion Maps-based Local Binary Patterns, in Proceedings of the IEEE Winter Conference on Applications of Computer Vision (WACV 2015), January 6-9, 2015, Waikoloa Beach, HI.

C77. Yashaswini Prathivadi, Jian Wu, Terrell R. Bennett, Roozbeh Jafari, Robust Activity Recognition using Wearable IMU Sensors, IEEE Sensors, November 3-5, 2014, Valencia, Spain.

C76. Jian Wu, Roozbeh Jafari, Zero-Effort Camera-Assisted Calibration Techniques for Wearable Motion Sensors, ACM International Conference on Wireless Health, October 29-31, 2014, Bethesda, MD. (acceptance rate: 25%)

C75. Viswam Nathan, Roozbeh Jafari, Reducing the Noise Level of EEG Signal Acquisition through Reconfiguration of Dry Contact Electrodes, IEEE Biomedical Circuits and Systems Conference (BioCAS), October 22-24, 2014, Lausanne, Switzerland.

C74. Kui Liu, Chen Chen, Roozbeh Jafari, and Nasser Kehtarnavaz, Multi-HMM classification for hand gesture recognition using two differing modality sensors, The 10th IEEE Dallas Circuits and Systems Conference (DCAS'14), October 12-13, 2014, Richardson, TX.

C73. Mary Reagor, Chengzhi Zong, Roozbeh Jafari, Maximizing Information Transfer Rates in an SSVEP-based BCI using Individualized Bayesian Probability Measures, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 26-30, 2014, Chicago, IL.

C72. Omid Dehzangi, Viswam Nathan, Chengzhi Zong, Chang Lee, Insoo Kim, Roozbeh Jafari, A Novel Stimulation for Multi-Class SSVEP-Based Brain-Computer Interface Using Patterns of Time-Varying Frequencies, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 26-30, 2014, Chicago, IL.

C71. Simi Susan Thomas, Viswam Nathan, Chengzhi Zong, Ebunoluwa Akinbola, Antoine Lourdes Praveen Aroul, Lijoy Philipose, Karthikeyan Soundarapandian, Xiangrong Shi, Roozbeh Jafari, BioWatch - A Wrist Watch based Signal Acquisition System for Physiological Signals including Blood Pressure, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 26-30, 2014, Chicago, IL.

C70. Chen Chen, Kui Liu, Roozbeh Jafari, Nasser Kehtarnavaz, Home-based Senior Fitness Test Measurement System Using Collaborative Inertial and Depth Sensors, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 26-30, 2014, Chicago, IL.

C69. Chen Chen, Nasser Kehtarnavaz, Roozbeh Jafari, A Medication Adherence Monitoring System for Pill Bottles Based on a Wearable Inertial Sensor, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 26-30, 2014, Chicago, IL.

C68. Viswam Nathan, Roozbeh Jafari, Characterizing Contact Impedance, Signal Quality and Robustness as a Function of the Cardinality and Arrangement of Fingers on Dry Contact EEG Electrodes, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 26-30, 2014, Chicago, IL.

C67. Terrell R. Bennett, Claudio Savaglio, David Lu, Hunter Massey, Xianan Wang, Jian Wu, Roozbeh Jafari, MotionSynthesis Toolset (MoST): A Toolset for Human Motion Data Synthesis and Validation, MobileHealth 2014, August 11-14, 2014, Philadelphia, PA.

C66. Terrell R. Bennett, Roozbeh Jafari, Nicholas Gans, Motion Based Acceleration Correction for Improved Sensor Orientation Estimates, 2014 International Conference on Wearable and Implantable Body Sensor Networks (BSN), June 16-19, Zurich, Switzerland.

C65. Yuan Zou, Omid Dehzangi, Viswam Nathan, Roozbeh Jafari, Automatic Removal of EEG Artifacts Using Electrode-Scalp Impedance, IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), May 4-9, 2014, Florence, Italy.

C64. Roozbeh Jafari, Omid Dehzangi, Chengzhi Zong, Viswam Nathan, BCIBench: A Benchmarking Suite for EEG-Based Brain Computer Interface, Workshop on Optimizations for DSP and Embedded Systems (ODES), February 15, 2014, Orlando, FL.

C63. Omid Dehzangi, Yuan Zou, Roozbeh Jafari, Simultaneous Classification of Motor Imagery and SSVEP EEG Signals, IEEE/EMBS Conference on Neural Engineering (NER), November 5-6, 2013, San Diego, CA.

C62. Omid Dehzangi, Zheng Zhao, Mohammad-Mahdi Bidmeshki, John Biggan, Christopher Ray, Roozbeh Jafari, The Impact of Vibrotactile Biofeedback on the Excessive Walking Sway and the Postural Control in Elderly, ACM International Conference on Wireless Health, November 1-3, 2013, Baltimore, MD. (acceptance rate: 21%)

C61. Akshay Sridharan, Carl Sechen, Roozbeh Jafari, Low-Voltage Low-Overhead Asynchronous Logic, International Symposium on Low Power Electronics and Design (ISLPED), September 4 - 6, 2013, Beijing, China. (acceptance rate: 23%)

C60. Terrell Bennett, Roozbeh Jafari, Nicholas Gans, An Extended Kalman Filter to Estimate Human Gait Parameters and Walking Distance, American Control Conference (ACC), June 17 - 19, 2013, Washington, DC.

C59. Yuan Zou, Omid Dehzangi, Roozbeh Jafari, Score-base Adaptive Training for P300 Speller Brain Computer Interface, IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), May 26-31, 2013, Vancouver, Canada.

C58. Mohammad-Mahdi Bidmeshki, Roozbeh Jafari, Low Power Programmable Architecture for Periodic Activity Monitoring, ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), April 8-11, 2013, Philadelphia, PA. (acceptance rate: 23%)

C57. Reza Lotfian, Roozbeh Jafari, An Ultra-Low Power Hardware Accelerator Architecture for Wearable Computers Using Dynamic Time Warping, IEEE/ACM Design, Automation and Test in Europe (DATE), March 18-22, 2013, Grenoble, France.

C56. Nimish Kale, Jaeseong Lee, Reza Lotfian and Roozbeh Jafari, Impact of Sensor Misplacement on Dynamic Time Warping Based Human Activity Recognition Using Wearable Computers, ACM International Conference on Wireless Health, October 23-25, 2012, San Diego, CA. (acceptance rate: 24%)

C55. Ali Ahmadi, Omid Dehzangi, Roozbeh Jafari, Brain-computer interface signal processing algorithms: A Computational Cost vs. Accuracy Analysis for Wearable Computers, International Conference on Body Sensor Networks (BSN), May 10-12, 2012, London, UK.

C54. Yuan Zou, John Hart, Jr., Roozbeh Jafari, Automatic EEG Artifact Removal Based on ICA and Hierarchical Clustering, IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), March 25-30, 2012, Kyoto, Japan.

C53. Pasquale Panuccio, Hassan Ghasemzadeh, Giancarlo Fortino, Roozbeh Jafari, Power-Aware Action Recognition with Optimal Sensor Selection: An AdaBoost Driven Distributed Template Matching Approach, First International Workshop on Mobile Systems, Applications, and Services for Healthcare (mHealthSys) held at ACM SenSys, November 1st, 2011, Seattle, WA. (acceptance rate: 35%)

C52. Vitali Loseu, Jerry Mannil, Roozbeh Jafari, Lightweight Power Aware and Scalable Movement Monitoring for Wearable Computers: a Mining and Recognition Technique at the Fingertip of Sensors, ACM International Conference on Wireless Health, October 10-13, 2011, San Diego, CA. (acceptance rate: 35%)

C51. Jerry Mannil, Mohammad-Mahdi Bidmeshki, Roozbeh Jafari, Rejection of Irrelevant Human Actions in Real-time Hidden Markov Model Based Recognition Systems for Wearable Computers, ACM International Conference on Wireless Health, October 10-13, 2011, San Diego, CA. (acceptance rate: 35%)

C50. Ali Ahmadi, Roozbeh Jafari, John Hart, Jr., Light-weight Single Trial EEG Signal Processing Algorithms: Computational Profiling for Low Power Design, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 30, September 3, 2011, Boston, MA.

C49. Vitali Loseu, Hassan Ghasemzadeh, Roozbeh Jafari, A Wireless Communication Selection Approach to Minimize Energy-per-bit for Wearable Computing Applications, IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), June 27-29, 2011, Barcelona, Spain.

C48. Roozbeh Jafari, Reza Lotfian, A Low Power Wake-up Circuitry Based on Dynamic Time Warping for Body Sensor Networks, International Conference on Body Sensor Networks (BSN), May 23-25, 2011, Dallas, TX. (acceptance rate: 24%)

C47. Vitali Loseu, Roozbeh Jafari, Power Aware Wireless Data Collection for BSN Data Repositories, International Conference on Body Sensor Networks (BSN), May 23-25, 2011, Dallas, TX. (acceptance rate: 24%)

C46. Roozbeh Jafari, Tiered Low Power Wake-up Modules for Lightweight Embedded Systems, International Conference on Body Sensor Networks (BSN), May 23-25, 2011, Dallas, TX. (acceptance rate: 24%)

C45. Hassan Ghasemzadeh, Roozbeh Jafari, Ultra Low Power Granular Decision Making using Cross Correlation: Optimizing Bit Resolution for Template Matching, IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), April 11-14, 2011, Chicago, IL. (1 out of 139). **(Recipient of the Best Paper Award)**

C44. Hassan Ghasemzadeh, Roozbeh Jafari, Ultra Low Power Granular Decision Making using Cross Correlation: Minimizing Signal Segments for Template Matching, ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS), April 11-14, 2011, Chicago, IL. (acceptance rate: 28%)

C43. Hassan Ghasemzadeh, Roozbeh Jafari, A Greedy Buffer Allocation Algorithm for Power-aware Communication in Body Sensor Networks, The International Conference on Hardware-Software Codesign and System Synthesis (CODES+ISSS), October 24-29, 2010, Scottsdale, AZ. (acceptance rate: 34%)

C42. Vitali Loseu, Hassan Ghasemzadeh, Latifur R. Khan, and Roozbeh Jafari, A Mining Technique Using N-grams and Motion Transcripts for Body Sensor Network Data Repository, Wireless Health, October 4-7, 2010, San Diego, CA. (acceptance rate: 17%)

C41. Prem Santosh Udaya Shankar, Nikhil Raveendranathan, Nicholas R. Gans, and Roozbeh Jafari, Towards Power Optimized Kalman Filter for Gait Assessment using Wearable Sensors, Wireless Health, October 4-7, 2010, San Diego, CA. (acceptance rate: 17%)

C40. Sarah Ostadabbas, Roozbeh Jafari, Spectral Spatio-Temporal Template Extraction of EEG Signals, International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), August 31, September 4, 2010, Buenos Aires, Argentina.

C39. Hassan Ghasemzadeh, Roozbeh Jafari, Data Aggregation in Body Sensor Networks: A Power Optimization Technique for Collaborative Signal Processing, The 7th IEEE Communications Society Conference on Sensor, Mesh and Ad Hoc Communications and Networks (SECON), June 21-25, 2010, Boston, MA. (acceptance rate: 21%)

C38. Vitali Loseu, Hassan Ghasemzadeh, Sarah Ostadabbas, Nikhil Raveendranathan, Jacques Malan, and Roozbeh Jafari, Applications of Sensing Platforms in Body Sensor Networks, Light-weight Signal Processing for Computationally Intensive BSN Applications, Workshop affiliated with PETRA 2010, June, 2010, Samos, Greece.

C37. Hassan Ghasemzadeh, Vitali Loseu, Roozbeh Jafari, Collaborative Signal Processing for Action Recognition in Body Sensor Networks: A Distributed Classification Algorithm Using Motion Transcripts, The 9th ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), April 12-16, 2010, Stockholm, Sweden. (acceptance rate: 17%)

C36. Hassan Ghasemzadeh, Roozbeh Jafari, Body Sensor Networks for Baseball Swing Training: Coordination Analysis of Human Movements Using Motion Transcripts, The 8th Annual IEEE International Conference on Pervasive Computing and Communications (PerCom), March 29-April 2, 2010, Mannheim, Germany.

C35. Hassan Ghasemzadeh, Eric Guenterberg, Sarah Ostadabbas, Roozbeh Jafari, A Motion Sequence Fusion Technique Based on PCA for Activity Analysis in Body Sensor Networks, 31st Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC), September 2009, Minneapolis, MN.

C34. Nikhil Raveendranathan, Vitali Loseu, Eric Guenterberg, Roberta Giannantonio, Raffaele Gravin, Marco Sgroi, Roozbeh Jafari, Implementation of Virtual Sensors in Body Sensor Networks with SPINE Framework, IEEE Symposium on Industrial Embedded Systems (SIES), July 2009, Switzerland

C33. Eric Guenterberg, Hassan Ghasemezadeh, Vitali Loseu, Roozbeh Jafari, Distributed Continuous Action Recognition using a Hidden Markov Model on Body Sensor Networks, IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), June 2009, Marina Del Rey, CA. (acceptance rate: 22%)

C32. Eric Guenterberg, Hassan Ghasemzadeh, and Roozbeh Jafari, A Distributed Hidden Markov Model for Fine-grained Annotation in Body Sensor Networks, The Sixth International Conference on Body Sensor Networks (BSN), June 2009, Berkeley, CA.

C31. Hassan Ghasemzadeh, Nisha Jain, Marco Sgroi, Roozbeh Jafari, Communication Minimization for In-Network Processing in Body Sensor Networks: A Buffer Assignment Technique, IEEE/ACM Design, Automation and Test in Europe (DATE), April 2009, Nice, France. (acceptance rate: 27%)

C30. Eric Guenterberg, Sarah Ostadabbas, and Roozbeh Jafari, An Automatic Segmentation Technique in Body Sensor Networks Based on Signal Energy, The Fourth International Conference on Body Area Networks (BodyNets), April 1st-3rd 2009, Los Angeles, CA.

C29. Hassan Ghasemzadeh, Vitali Loseu, Roozbeh Jafari, Sport Training Using Body Sensor Networks: A Statistical Approach to Measure Wrist Rotation for Golf Swing, The Fourth International Conference on Body Area Networks (BodyNets), April 1st-3rd 2009, Los Angeles, CA.

C28. Hassan Ghasemzadeh, Jaime Barnes, Eric Guenterberg, Roozbeh Jafari, A Phonological Expression for Physical Movement Monitoring in Body Sensor Networks, The Fifth IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS), September-October 2008, Atlanta, GA. (acceptance rate: 10%)

C27. Amardeep Sathyanarayana, Sandhya Nageswaren, Hassan Ghasemzadeh, Roozbeh Jafari, John H.L. Hansen, Body Sensor Networks for Driver Distraction Identification, IEEE International Conference on Vehicular Electronics and Safety (ICVES), September 2008, Columbus, OH.

C26. Jaime Barnes, Roozbeh Jafari, Locomotion Monitoring Using Body Sensor Networks, First International Conference on PErvasive Technologies Related to Assistive Environments, July 2008, Athens, Greece.

C25. Rohith Ramachandran, Lakshmish Ramanna, Hassan Ghasemzadeh, Gaurav Pradhan, Roozbeh Jafari, Balakrishnan Prabhakaran, Body Sensor Networks to Evaluate Standing Balance: Interpreting Muscular Activitires Based on Inertial Sensors, The 2nd International Workshop on Systems and Networking Support for Healthcare and Assisted Living Environments (HealthNet), June 2008, Breckenridge, CO.

C24. Allen Yang, Roozbeh Jafari, Philip Kuryloski, Sameer Iyengar Shankar Sastry, Ruzena Bajcsy, Distributed Segmentation and Classification of Human Actions Using a Wearable Sensor Network, IEEE CVPR Workshop on Human Communicative Behavior Analysis (CVPR4HB), June 2008, Anchorage, AK.

C23. Roozbeh Jafari, Manuel Quevedo-Lopez, Bruce Gnade, John Hart, Jr., Body Sensor Networks for Health-care Monitoring: Premises, Challenges and Prospective, (Tutorial) ACM International Conference on Body Area Networks (BodyNets), March 2008, Tempe, AZ.

C22. Yuan Xue, Stephen Wicker, Philip Kuryloski, Shanshan Jiang, Roozbeh Jafari, Ruzena Bajcsy, Yanchuan Cao, Sameer Iyengar, CareNet: An Integrated Wireless Sensor Networking Environment for Remote Healthcare, ACM International Conference on Body Area Networks (BodyNets), March 2008, Tempe, AZ.

C21. Hassan Ghasemzadeh, Eric Guenterberg, Katherine Gilani, Roozbeh Jafari, Action Coverage Formulation for Power Optimization in Body Sensor Networks, ACM/IEEE Asia and South Pacific Design Automation Conference (ASP-DAC), January 2008, Seoul, Korea.

C20. Eric Guenterberg, Hassan Ghasemzadeh, Roozbeh Jafari, Ruzena Bajcsy, A Segmentation Technique Based on Standard Deviation in Body Sensor Networks, IEEE Dallas Engineering in Medicine and Biology Workshop (Dallas-EMBS), November 2007, Dallas, TX.

C19. 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 (HCMDSS) and Medical Device Plug-and-Play (MD PnP) Interoperability, June 2007, Boston, MA.

C18. 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 (HCMDSS) and Medical Device Plug-and-Play (MD PnP) Interoperability, June 2007, Boston, MA.

C17. Roozbeh Jafari, Soheil Ghiasi, Majid Sarrafzadeh, Medical Embedded Systems, (Tutorial) International Embedded Systems Symposium (IESS), May-June 2007, Irvine, CA.

C16. 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.

C15. 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.

C14. 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.

C13. Roozbeh Jafari, Devin L. Jindrich, V. Reggie Edgerton, Majid Sarrafzadeh, CMAS: Clinical Movement Assessment System for Neuromotor Disorders, IEEE Biomedical Circuits and Systems Conference (BioCAS), November-December 2006, London, UK.

C12. Majid Sarrafzadeh, Foad Dabiri, Roozbeh Jafari, Tammara Massey, Ani Nahapetian, Low Power Light-weight Embedded Systems, (Tutorial) International Symposium on Low Power Electronics and Design (ISLPED), October 2006, Tegernsee, Germany.

C11. Roozbeh Jafari, Hyduke Noshadi, Soheil Ghiasi, Majid Sarrafzadeh, Adaptive Medical Feature Extraction for Resource Constrained Distributed Embedded Systems, The first IEEE International Workshop on Pervasive and Ubiquitous Health Care (UbiCare) in conjunction with PerCom, March 2006, Pisa, Italy.

C10. 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.

C9. 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.

C8. Roozbeh Jafari, Seda Ogrenci Memik, Majid Sarrafzadeh, Quick Reconfiguration in Clustered Micro-Sequencer, IEEE International Parallel & Distributed Processing Symposium (IPDPS-RAW), April 2005, Denver, CO.

C7. 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.

C6. Jennifer L. Wong, Roozbeh Jafari, Miodrag Potkonjak., Gateway Placement for Latency and Energy Efficient Data Aggregation, The 29th Annual IEEE International Conference on Local Computer Networks (LCN), IEEE Computer Society, 2004, pp. 490-497.

C5. 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.

C4. Mohammad S. Sadri, Nasim Shams, Masih Rahmaty, Iraj Hosseini, Reihane Changiz, Shahed Mortazavian, Shima Kheradmand, Roozbeh Jafari, An FPGA Based Fast Face Detector, Global Signal Processing Expo & Conference (GSPx), July 2004, Santa Clara, CA.

C3. Fang-Chung Chen, Foad Dabiri, 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, Communication Networks and Distributed Systems Modeling and Simulation Conference (CNDS), January 2004, San Diego, CA.

C2. 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.

C1. Roozbeh Jafari, Henry Fan, Majid Sarrafzadeh, A Programmable System with Quick Reconfiguration, DesignCon, January 2003, San Jose, CA.

Short Papers and Posters

SP12. Simi Susan Thomas, Viswam Nathan, Chengzhi Zong, Praveen Aroul, Lijoy Philipose, Karthikeyan Soundarapandian, Xiangrong Shi, Roozbeh Jafari, Demonstration Paper: BioWatch: A Wrist Watch based

Physiological Signal Acquisition System, ACM/IEEE International Conference in Information Processing in Sensor Networks (IPSN), April 15-17, 2014, Berlin, Germany.

SP11. Jian Wu, Zhangyu Wang, Suraj Raghuraman, Balakrishnan Prabhakaran, Roozbeh Jafari, Demonstration Paper: Upper Body Motion Capture System using Inertial Sensors, ACM/IEEE International Conference in Information Processing in Sensor Networks (IPSN), April 15-17, 2014, Berlin, Germany.

SP10. Viswam Nathan, Jian Wu, Chengzhi Zong, Yuan Zou, Omid Dehzangi, Mary Reagor, Roozbeh Jafari, A 16-channel Bluetooth Enabled Wearable EEG Platform with Dry-contact Electrodes for Brain Computer Interface, ACM International Conference on Wireless Health, November 1-3, 2013, Baltimore, MD.

SP9. Vitali Loseu, Hassan Ghasemzadeh, Roozbeh Jafari, Towards a Power Optimized Communication Failure Recovery Scheme for Body Sensor Networks, First International Conference on Cyber-Physical Systems (ICCPS), April 13-15, 2010, Stockholm, Sweden.

SP8. Anuradha Annadhorai, Eric Guenterberg, Jaime Barnes, Kruthika Haraga, Roozbeh Jafari, Human identification by gait analysis, In Proceedings of the ACM 2nd international Workshop on Systems and Networking Support For Health Care and Assisted Living Environments (HealthNet), June 17, 2008, Breckenridge, CO.

SP7. Jaime Barnes, Vikram Ramachandra, Katherine Gilani, Eric Guenterberg, Hassan Ghasemzadeh, Roozbeh Jafari, Locomotion Monitoring using Body Sensor Networks, International Conference on Information Processing in Sensor Networks (IPSN), April 2008, St. Louis, MO.

SP6. Antti Vehkaoja, Sameer Iyengar, Mari Zakrzewski, Roozbeh Jafari, Ruzena Bajcsy, Steven Glaser, Jukka Lekkala, Shankar Sastry, A Resource Optimized Physical Movement Monitoring Scheme for Environmental and on-Body Sensor Networks, ACM workshop on Systems and Networking Support for Healthcare and Assisted Living Environments (HealthNet), June 2007, Puerto Rico.

SP5. Roozbeh Jafari, Devin L. Jindrich, V. Reggie Edgerton, Majid Sarrafzadeh, Quantitative Assessment of Neuromotor Disorders Using a Wearable Sensor Network, Neuroscience '06, Symposium of Neuroscience, October 2006, Atlanta, GA.

SP4. Robert C. LeMoyne, Roozbeh Jafari, Quantified Deep Tendon Reflex Device, Neuroscience '06, Symposium of Neuroscience, October 2006, Atlanta, GA.

SP3. 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.

SP2. 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.

SP1. Roozbeh Jafari, Foad Dabiri, Bo Kyung Choi, Majid Sarrafzadeh, Efficient Placement and Routing in Grid-Based Networks, The 20th ACM Symposium on Applied Computing (SAC), March 2005, Santa Fe, NM.

Patents

P4. Nasser Kehtarnavaz, Roozbeh Jafari, Kui Liu, Chen Chen, Jian Wu, Fusion of inertial and depth sensors for robust body movement measurements and recognition, US61/912,516.

P3. Allen Yang, Ruzena Bajcsy, Shankar Sastry, Roozbeh Jafari, System for Detection of Body Motion, Issued on 6/23/2015, Patent Number: 9,060,714.

P2. Roozbeh Jafari, Devin Jindrich, V. Reggie Edgerton, Majid Sarrafzadeh, Method for Quantified Assessment of Neuromotor Disorders, US20100113979A1.

P1. Robert LeMoyne, Roozbeh Jafari, Warren Grundfest, Majid Sarrafzadeh, Fully Quantified Evaluation of Myotatic Stretch Reflex, Provisional patent.

Externally Funded Projects

Funding raised as PI or co-PI: $6,865,637
Funding raised as PI: $4,073,641
Funding directed to Jafari's lab: $4,084,353

P22. National Science Foundation, $360,000, 8/15-8/18, Role: **PI**
Ultra-Low Power Inertial MEMS for Pervasive Wearable Computing

P22. Texas Instruments, $25,000, 9/14-9/15, Role: **PI**
Gesture Recognition using Wrist-worn EMG and Motion Sensors

P21. Texas Collaborative Research Funding Prog. in Medical Tech., $100,000, 6/14-6/15, Role: **PI**
EE-BioWatch: A Wrist-Worn Device for Energy Expenditure Monitoring

P20. Texas Collaborative Research Funding Prog. in Medical Tech., $100,000, 6/13-6/14, Role: **PI**
Wrist-based Non-Invasive Wearable Sensors for Cont. Blood Pressure Monitoring using Pulse Transit Time

P19. National Science Foundation (NSF), $50,000, 3/13-9/14, Role: **PI**
Self-Calibration Techniques for Robust Brain Computer Interface

P18. DARPA and SRC, $1,278,333, 1/13-1/18, Role: **site-PI (PI:** E. A. Lee, Berkeley, total funding $27.5M)
The TerraSwarm Research Center (TSRC)

P17. Samsung Telecommunications America, $150,000, 10/12-2/14, Role: **PI**
Adaptive Signal Processing and Training Methods for Brain Computer Interface

P16. National Science Foundation (NSF), $18,250, 9/12-9/13, Role: **PI**
Mentorship and Student-Author Travel Grant for Wireless Health 2013 Conference

P15. Texas Instruments, $153,000, 8/12-7/13, Role: **PI**
Wearable Physiological Monitoring Platforms

P14. Texas Instruments, $25,000, 4/12-3/13, Role: **PI**
Wireless Electroencephalography

P13. National Science Foundation (NSF), $400,000 (+$48K REU), 2/12-2/17, Role: **PI**
CAREER: Ultra Low Power Architectures for Wearable Computing

P12. Semiconductor Research Corporation (SRC), $422,913, 2/12-2/15, Role: **PI**
Non-Contact & Dry-Contact Reconfigurable Electroencephalography

P11. Texas Instruments/Texas Health Resources, $100,000, 1/12-1/13, Role: **co-PI**
Fall Prevention through Retraining Sensory Weighting using a Virtual Env. and Vibrotactile Biofeedback

P10. National Institute of Health (NIH), $366,746, 9/11-8/15, Role: **PI**
Sway and Biofeedback for Fall Prevention

P9. Department of Defense (TATRC), $94,848, 8/11-8/12, Role: **PI**
Enhancing Soldier Performance and Brain Repair Using Virtual Reality Hapto-Robotic Training

P8. NSF IUCRC/Tektronix, $50,000, 8/11-8/12, Role: **PI**
FPGA based Network Processor for 40 Gbps Routers

P7. National Science Foundation (NSF), $52,551, 8/11-7/12, Role: **PI**
Methodologies for Tight Integration of Physical and Cyber Models in Power Aware Wearable Computers

P6. Air Force Research Lab (AFRL), $50,000, 4/11-4/12, Role: **subcontract-PI**
Ultra Low Power Electronics for Autonomous Micro-Sensor Applications

P5. National Science Foundation (NSF), $2,541,996, 9/10-9/15, Role: **co-PI**
NetSE: Large: Collaborative Research: Exploiting Multi-modality for Tele-Immersion

P4. Telecom Italia, $50,000, 8/10-8/12, Role: **PI**
SPINE: Signal Processing in Node Environment

P3. Semiconductor Research Corporation (SRC), $195,000, 1/10-12/12, Role: **PI**
A Smart Analog-enabled pre-Conditioning Stage for Inertial Sensing Applications

P2. Texas Health Resources/Texas Instruments, $100,000, 1/10-2/12, Role: **PI**
WAIMS: Wireless Automated Inpatient Monitoring System

P1. Air Force Office of Scientific Research (AFOSR), $150,000, 10/6-9/8, Role: **co-PI**
Electronic Textile Sensors for Stress Measurement in Soldiers

Student Alumni

1. **Omid Dehzanghi (Post-Doc, 2014)**, Research Area: Wearable Computer Design for Biofeedback and Fall Prevention, Current position: Assistant Professor, Computer and Information Science department at University of Michigan, Dearborn.
2. **Yuan Zou (PhD, 2014)**, Dissertation: Addressing the Challenges in Signal Quality and Calibration Time of EEG-based Brain Computer Interface.
3. **Vitali Loseu (PhD, 2011)**, Dissertation: Data Mining at the Fingertips of the Sensors, Current position: Texas Instruments, Dallas, TX.
4. **Hassan Ghasemzadeh (PhD, 2010)**, Dissertation: Power-Aware Signal Processing for Physical Movement Monitoring in Body Sensor Networks, Current position: Assistant Professor, Electrical Engineering and Computer Science, Washington State University, Pullman, WA.
5. **Simi-Susan Thomas (MS, 2014)**, Thesis: Non-invasive Wrist-based Blood Pressure Monitoring that Incorporates Training Techniques for Posture and Subject Variability.
6. **Zheng Zhao (MS, 2013)**, Project: Sway Monitoring and Vibro-tactile Feedback for Fall Prevention, Current Position: Sperlonga Data & Analytics, Dallas, TX.
7. **Nimish Kale (MS, 2012)**, Thesis: A Case Study on Robustness of Dynamic Time Warping for Activity Recognition Using Wearable Computers, Current position: R&D at Qualcomm, San Diego, CA.
8. **Jerry Mannil (MS, 2011)**, Thesis: A Real-time Hidden Markov Model Based Action Recognition System Using Body Sensor Networks, Current position: Broadcom, San Jose, CA.
9. **Nikhil Raveendranathan (MS, 2010)**, Thesis: Implementation of Movement Monitoring in Body Sensor Network and Assisted Virtual Reality, Current position: Research in Motion (RIM - BlackBerry), Dallas, TX.
10. **Eric Guenterberg (MS, 2009)**, Thesis: Segmentation Techniques for Biokinematic Data from Body Sensor Networks.
11. **Nisha Jain (MS, 2009)**, non-thesis option, Current position: Intel, Portland. OR.
12. **Chellappan Valliyappan (MS, 2009)**, non-thesis option, Current position: Advanced Micro Devices (AMD), Austin, TX.

(All students received full financial support from the adviser to complete their studies.)

Professional Experience

Synergistic Activities **Associate Editor** (2012 – current), IEEE Sensors Journal
Associate Editor (2013 – current)**,** IEEE Journal of Biomedical and Health

Informatics (retitled from IEEE Transactions on Information Technology in Biomedicine)
Associate Editor (2013 – current), IEEE Internet of Things Journal
Guest Editor, IEEE Transactions on Emerging Topics in Computing, Special Issue on Emerging Systems and Applications for Wireless Health Computing 2014
Guest Editor, IEEE Transactions on Information Technology in Biomedicine, Special Issue on Body Sensor Networks 2011
Guest Editor, ACM Transactions on Embedded Computing, Special Issue on Wireless Health 2010
Steering Committee Member, ACM Wireless Health Conference 2010-2014
Steering Committee Member, Intl. Conf. on Body Sensor Networks 2012-2014.
General Co-Chair, Wireless Health 2013
Technical Program Committee Co-Chair, Wireless Health 2012
Technical Program Committee Co-Chair, Body Sensor Networks 2011
Technical Program Committee Co-Chair, BodyNets 2011
Organizer, BSN Contest 2011 & 2012 - http://bsncontest.org
Workshop Organizer:

- Sixth Workshop on Medical Cyber-Physical Systems (MedicalCPS), in conjunction with CPSWeek, 2015
- International Workshop on the Swarm at the Edge of the Cloud, in conjunction with CPSWeek, 2015
- ACM UbiComp Workshop on Smart Health Systems and Applications, 2014
- IEEE Texas Workshop on Integrated System Exploration (TexasWISE) 2014, 2015
- MobileHealth, ACM MobiHoc Workshop on Pervasive Wireless Healthcare, 2014
- Health Informatics Workshop, Wireless Health 2011
- Light-weight Signal Processing Workshop, PETRA 2010
- Multimedia Aspects in Pervasive Healthcare Workshop, ICME 2009

Demonstration Chair, IPSN 2014, in conjunction with CPS Week
Associate Editor, Intl. Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) 2011-2014
Technical Program Committee Membership:

- IEEE Intl. Conference on Information Processing in Sensor Networks (IPSN) 2015
- IEEE/CAS-EMB Biomedical Circuits and Systems Conference (BioCAS) 2014
- Intl. Symposium on Low Power Electronics and Design (ISLPED) 2013-2015
- IEEE Int. Conference on Computer-Based Medical Systems (CBMS) 2014
- IEEE Healthcare Innovations and Point-of-care Technologies Conference, 2014
- IEEE Intl. Conference on Healthcare Informatics (ICHI) 2013-2015
- Intl. Conference on Wireless Mobile Communication and Healthcare (MobiHealth) 2011, 2014
- IEEE Intl. Conference on e-Health Networking, Applications and Services (Healthcom) 2013
- IEEE International Conference on Systems, Man and Cybernetics (SMC) 2014
- ACM Wireless Health 2010-2012 Conference
- Intl. Conference on Body Sensor Networks (BSN) 2009, 2010, 2012
- Intl. Conference on Cyber-Physical Systems (ICCPS) 2012

- IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS) 2012
- ACM SIGHIT Intl. Health Informatics Symposium (IHI) 2010-2013
- ACM MobiHoc Workshop on Pervasive Wireless Healthcare (MobileHealth) in conjunction with MobiHoc 2011-2013
- Intl. Conference on Mobile Computing, Applications and Services (MobiCASE), 2011, 2012
- Intl. Conference on Body Area Networks (BodyNets) 2008-2010, 2013
- IEEE Symposium on Industrial Embedded System (SIES) 2009
- IEEE Intl. Symposium on Circuits and Systems (ISCAS) 2007

Tutorials:

- "Wearable Computers: a Holistic Design Approach" at IEEE/IFIP NOMS 2014
- "Body Sensor Networks for Health-care Monitoring: Premises, Challenges and Prospective" at BodyNets 2008
- "Reliability in Light-Weight Medical Monitoring Platforms" at BSN 2007
- 'Medical Embedded Systems" at IESS 2007
- "Low Power Light-weight Embedded Systems" at ISLPED 2006

Member of Review Panel and Study Section for Funding Agencies

- Member of an NIH-lead committee preparing recommendations to support development of a centralized research data repository for methods development in body sensor networks (BSN) applications for clinical, research, and consumer applications
- NSF ENG/ECCS, CISE/CPS, CSR, HCC, SHB, CRI and CAREER programs 2008, 2010-2014
- NIH – ETTN-K (SBIR and STTR programs) 2012-2014
- Knowledge Foundation-KK-Stiftelsen, Sweden, 2007, 2009, 2011
- State of Maryland, Technology Transfer Program, 2008
- State of Louisiana, Board of Regents, 2010

Membership IEEE, Senior Member; ACM, Member; Society for Neuroscience, Member

Work Experience

Post-doctoral Scholar
7/06 – 6/07
University of California, Berkeley, CA
Electrical Engineering and Computer Science Department

Research Assistant
7/02 – 6/06
University of California, Los Angeles, CA
Computer Science Department
Embedded and Reconfigurable Lab

Engineering Intern
5/01 – 8/01
IBM Corporation, Endicott, NY
Electronic Design Automation Group
VLSI Testing – Random Pattern Fault Analysis

Research Assistant
9/00 – 1/01
State University of New York, Buffalo, NY
Electrical Engineering Department
Security, Privacy and Dependability Research Lab

System Engineer
4/99 – 7/00
KCR (www.kavoshcom.com), Tehran, Iran
Designed and implemented an in-circuit tester for electronic ballast investigated 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
6/98 – 9/98
Iran Telecommunication Research Center (ITRC), Tehran, Iran
Data error correction for communication devices

Teaching Experience

Electrical Eng. Dept. UT-Dallas	EE 6302: Microprocessor Design **(this class was developed from scratch and includes extensive laboratory experiments)** CE 4370: Introduction to Embedded Systems **(this class was developed from scratch and includes extensive laboratory experiments)** EE/CE2310: Introduction to Digital Systems EE/CE2110: Introduction to Digital Systems Lab EE7V82: Light-weight Embedded Systems Short lectures for EE7V82: Bio-Survey Course page: http://www.essp.utdallas.edu/Main/Courses
Xilinx Course Certificates	Fundamentals of FPGA Design (8 hrs), Design for Performance (16 hrs) Xilinx University Program – Embedded Development Kit (EDK) (8 hrs)

University Services

Electrical Engineering, Chair: Teaching Assistants Award Committee (overseeing TA awards to 65+ students), 2014-2015
Electrical Engineering, Teaching Assistants Award Committee, 2012-2014
Electrical Engineering, Bylaws Committee (representative for EE assistant professors) 2011-2012
EE department did not have bylaws. The committee drafted bylaws taking input from the faculty.
Electrical Engineering, Teaching Assistants Assignment Committee, 2007-2012
Electrical Engineering, Qualifying Exam Committee, 2010-current
Computer Engineering, Graduate Admission Committee, 2007-current
Computer Engineering, Graduate Committee, 2008-2010
Computer Engineering, Faculty Search Committee, 2010-2011, 2012-2013
Computer Engineering, Qualifying Exam Committee, 2010-current

Invited Talks and Performance

- **Tutorial: Wearable Computers: a Holistic Design Approach**, IEEE/IFIP Network Operations and Management Symposium 2014 (NOMS), May 14th, 2014, Krakow, Poland. (http://noms2014.ieee-noms.org/content/tutorials)
- **SRC eSeminar: Brain Computer Interface: An Embedded Signal Processing Perspective**, November 22, 2013, Dallas, TX.
- **Invited Speaker: Wireless Health: Challenges and Opportunities**, IEEE Dallas CVT Society, November 19, 2013, Dallas, TX. (http://www.cvt-dallas.org/meetings1113.htm)
- **SRC Tutorial: Wearable Computers: O(1) Observation = Many Opportunities**, November 15, 2013, Berkeley, CA.
- **Invited Speaker: Wireless Health: Challenges and Opportunities**, October 18th, 2013, Bioengineering Department, UCSD, La Jolla, CA.
- **Invited Speaker: Brain Computer Interface: An Embedded Signal Processing Perspective**, Institute for Neural Computation Chalk Talk Series, October 17th, 2013, UCSD, La Jolla, CA. (http://inc.ucsd.edu/inc_sem.html)
- **Invited Speaker: Wearable Computers: 0(1) Observation = Many Opportunities**, TxACE Symposium, October 21, 2013, Dallas, TX.
- **Invited Talk: Design Flow for SwarmWear Platforms**, First International Workshop on the Swarm at the Edge of the Cloud (SEC), September 29, 2013, Montreal, Canada. (http://www.terraswarm.org/conferences/13/swarm/agenda.htm)
- **Invited Speaker: Wireless Health: Challenges and Opportunities**, September 6, 2013, Peking University, Peking, China. (http://ceca.pku.edu.cn/s.asp?id=350)
- **Featured Invited Talk: Wireless Health: Challenges and Opportunities**, The 24th IEEE International Conference on Application-specific Systems, Architectures and Processors (ASAP), June 7, 2013, Ashburn, VA.

(http://hpcl.gwu.edu/asap2013/program)

- **Invited Panel Member: Medical Use of Wireless Hospital Room of the Future**, Virginia Tech Symposium on Wireless Personal Communications, May 29, 2013, Blacksburg, VA. (https://wireless.vt.edu/symposium/2013/2013%20Symposium%20Program.pdf)
- **Invited Speaker: Wireless Health: Challenges and Opportunities**, March 14, 2013, Université Paris 13, Paris, France.
- **Outstanding Young Speaker Talk: Wireless Health: Challenges and Opportunities**, IEEE Texas Workshop on Integrated System Exploration (TexasWISE) 2013, March 8, 2013, Winedale House, Round Top, TX. (http://texaswise.tamu.edu/program.html)
- **Keynote Speech: The Challenges and the Opportunities in Wireless Health**, ACM MobiHoc Workshop on Pervasive Wireless Healthcare in conjunction with MobiHoc 2012, June 11, 2012. Hilton Head Island, SC.

Press Items

- **This Wearable Device Translates Sign Language To English**
  October 6, 2015, Smithsonian Magazine
  http://www.smithsonianmag.com/innovation/wearable-device-translates-sign-language-english-180956827/
- **Samsung Demos a Tablet Controlled by Your Brain**
  April 19, 2013, MIT Technology Review
  http://www.technologyreview.com/news/513861/samsung-demos-a-tablet-controlled-by-your-brain/
- **Baseball Meets Internet of Things: Bye, Bad Umpires?**
  April, 6, 2013, InformationWeek
  http://www.informationweek.com/hardware/processors/baseball-meets-internet-of-things-bye-ba/240152409?queryText=ieee
- **Researchers on Quest to Create Next-Generation Technologies**
  January, 22, 2013, The University of Texas at Dallas News Center
  http://www.utdallas.edu/news/2013/1/22-21651_Researchers-on-Quest-to-Create-Next-Generation-Tec_article-wide.html
- **Wearable Computers the Size of Buttons to Monitor Health**
  December, 20, 2012, The IEEE Spectrum
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