

Hassan Ghasemzadeh

Embedded Systems and Signal Processing Lab.
Department of Electrical Engineering
University of Texas at Dallas
800 W Campbell Rd, EC33
Richardson, TX, 75083-0688

<http://www.utdallas.edu/~h.ghasemzadeh>
h.ghasemzadeh@utdallas.edu
Phone: 972-259-7816

Research Interests

Algorithms for Networked Embedded Systems
Collaborative Signal and Information Processing
Medical Embedded System Design
Ubiquitous Computing for Healthcare
Wireless Body Area Networks
Low Power Wearable Architectures
Reconfigurable Computing
Computer Aided System Design
Computer Systems Architecture

Education

PhD in Computer Engineering 01/2007- Present	University of Texas at Dallas, Richardson, TX Department of Electrical Engineering, Adviser: Prof. Roozbeh Jafari Course work: Design and Analysis of Computer Algorithms, Algorithmic Aspects of Telecommunication Networks, VLSI Design, Light-weight Embedded Systems, Information Theory
MSc in Computer Engineering 09/1998-09/2001	University of Tehran, Tehran, Iran Department of Electrical and Computer Engineering Adviser: Prof. Zeinalabedin Navabi Course work: Advanced VLSI Design, Advanced Computer Architecture, Parallel Processing, VHDL, Fault Tolerance, Testing and Testable Design, Hardware Implementation of Neural Networks and Intelligent Systems
BSc in Computer Engineering 09/1993-02/1998	Sharif University of Technology, Tehran, Iran Department of Computer Engineering Adviser: Prof. Shaahin Hessabi

Employment History

Research Assistant 01/07- Present	University of Texas at Dallas, Richardson, TX Department of Electrical Engineering Embedded Systems and Signal Processing (ESSP) Lab.
Teaching Assistant 09/07- Present	University of Texas at Dallas, Richardson, TX Department of Electrical Engineering
Faculty 09/2003-12/2006	Azad University of Damavand, Tehran, Iran Department of Computer Engineering
Department Chair 09/2003-09/2006	Azad University of Damavand, Tehran, Iran Department of Computer Engineering Director of undergraduate studies

Manager 07/2001-09/2003	Bamdad Computer Co., Tehran, Iran Training and Support Section IT Manager and Director of Support and Training Section (in charge of 65 employees)
System Administrator 06/1997-07/2001	Bamdad Computer Co., Tehran, Iran Training and Support Section System and Database Administrator Network and Servers Administrator
Teaching Assistant 09/1999-09/2001	University of Tehran, Tehran, Iran Department of Electrical and Computer Engineering Graduate courses include Parallel Processing, Advanced VLSI Design, Advanced Computer Architecture

Publications

Journal Articles

- J10 **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)*.
- J09 **Hassan Ghasemzadeh**, Vitali Loseu, Roozbeh Jafari, Structural Action Recognition in Body Sensor Networks: Distributed Classification Based on String Matching, accepted for publication in *IEEE Transactions on Information Technology in BioMedicine Special Issue on Personal Health Systems (TITB)*.
- J08 **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, pp 58-69, January 2009.
- J07 **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)*.
- J06 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)*.
- J05 **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, February 2009.
- J04 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, Article 28, 26 pages, July 2009.
- J03 **Hassan Ghasemzadeh**, Eric Guenterberg, Roozbeh Jafari, Physical Movement Monitoring using Body Sensor Networks: A Phonological Approach to Construct Spatial Decision Trees, *IEEE Transactions on Industrial Informatics (TII)*, Under Major Revision.
- J02 Eric Guenterberg, Sarah Ostadabbas, **Hassan Ghasemzadeh**, Roozbeh Jafari, Automatic Segmentation and Recognition in Body Sensor Networks Using a Hidden Markov Model, *ACM Transactions in Embedded Computing Systems (TECS)*, Under Review.
- J01 **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*, Under Review.

Conference and Workshop Papers

- C21 **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.
- C20 **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.
- C19 **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.
- C18 Eric Guenterberg, **Hassan Ghasemzadeh**, 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.
- C17 Eric Guenterberg, **Hassan Ghasemzadeh**, and Roozbeh Jafari, A Distributed Hidden Markov Model for Fine-grained Annotation in Body Sensor Networks, *The Sixth International Workshop on Body Sensor Networks (BSN)*, June 2009, Berkeley, CA.
- C16 **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 20-24 2009, Nice, France.
- C15 **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.
- C14 Eric Guenterberg, Sarah Ostadabbas, **Hassan Ghasemzadeh**, 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.
- C13 **Hassan Ghasemzadeh**, Roozbeh Jafari, Sensing Health: Challenges in Designing Mobile Sensory Platforms for Healthcare Monitoring, *The Tenth Workshop on Mobile Computing Systems and Applications (HotMobile) Doctoral Consortium*, February 23-24 2009, Santa Cruz, CA.
- C12 **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 and October 2008, Atlanta, GA.
- C11 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.
- C10 Rohith Ramachandran, Lakshmith Ramanna, **Hassan Ghasemzadeh**, Gaurav Pradhan, Roozbeh Jafari, Balakrishnan Prabhakaran, Body Sensor Networks to Evaluate Standing Balance: Interpreting Muscular Activities Based on Inertial Sensors, *The 2nd International Workshop on Systems and Networking Support for Healthcare and Assisted Living Environments (HealthNet)*, June 2008, Breckenridge, CO.
- C09 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.
- C08 **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.
- C07 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.

C06 Mohammad Reza Kokoe, Hamid Shojaei, **Hassan Ghasemzadeh**, Marjan Sirjani, Zeinalabedin Navabi, A New Approach for Design and Verification of Transaction Level Models”, *IEEE International Symposium on Circuits and Systems (ISCAS'07)*, pp. 3760-3763, New Orleans, USA, May 2007.

C05 **Hassan Ghasemzadeh**, Sepideh Mazouee, Hassan Goldani Moghaddam, Hamid Shojaei, Mohammad Reza Kokoe, “Hardware Implementation of Stack-Based Replacement Algorithms, *In Proceedings of World Academy of Science, Engineering and Technology (WASET)*, pp. 135-139, Venice, Italy, November 2006.

C04 **Hassan Ghasemzadeh**, Sepideh Mazouee, Mohammad Reza Kokoe, Modified Pseudo LRU Replacement Algorithm, *IEEE International Conference and Workshop on the Engineering of Computer Based Systems (ECBS)*, pp. 368-376, Potsdam, Germany, March 2006.

C03 **Hassan Ghasemzadeh**, S. Omid Fatemi, Pseudo-FIFO Architecture of LRU Replacement Algorithm, *IEEE International Multi Topic Conference (INMIC)*, Karachi, Pakistan, December 2005.

C02 **Hassan Ghasemzadeh**, Zeinalabedin Navabi, Exploiting LRU Replacement Algorithm in Victim Caches, *Iranian Student's Conference on Electrical Engineering (ISCEE)*, Tehran, Iran, September 2001.

C01 **Hassan Ghasemzadeh**, Zeinalabedin Navabi, Design and Performance Evaluation of Quasi LRU Replacement Algorithm, *Iranian Student's Conference on Electrical Engineering (ISCEE)* (in Farsi), Tehran, Iran, September 2001.

Books

B03 **Hassan Ghasemzadeh**, “Collection of tests in computer for graduate level entrance exam” (in Farsi), Vol. 3, Pardazeshgaran, Tehran, 2002. ISBN: 964-7561-01-6

B02 **Hassan Ghasemzadeh**, “Collection of tests in computer for graduate level entrance exam” (in Farsi), Vol. 2, Pardazeshgaran, Tehran, 2000. ISBN: 964-92996-4-5

B01 **Hassan Ghasemzadeh**, “Collection of tests in computer for graduate level entrance exam” (in Farsi), Vol. 1, Behraves, Tehran, 1999. ISBN: 964-91934-6-4

Other Publications

O02 Daniel Câmara, Daniel T. Fokum, Eric Anderson, **Hassan Ghasemzadeh**, Yong Liu, Report from HotMobile 2009, *IEEE Pervasive Computing*, vol. 8, no. 3, pp. 94-96, July-September, 2009.

O01 **Hassan Ghasemzadeh**, Sepideh Mazouee, Hassan Goldani Moghaddam, Hamid Shojaei, Mohammad Reza Kokoe, Hardware Implementation of Stack-Based Replacement Algorithms, *International Journal of Applied Mathematics and Computer Sciences*, vol 2, no. 3, pp 143-147, Summer 2006.

Teaching Experience

Teaching Assistant
09/2007- Present

University of Texas at Dallas, Richardson, TX
Department of Electrical Engineering,
Light-weight Embedded Systems, Digital Circuits Design, Introduction to Digital Systems Laboratory,
Introduction to Experimental Techniques, Linear Algebra for Engineers.
Head TA of Introduction to Digital Systems Laboratory (EE2110) for three semesters.

Instructor
09/2003-12/2006

Azad University of Damavand, Tehran, Iran
Computer Architecture, Digital Logic Design, Computer Networks, Computer Programming, Advanced
Computer Programming, Data Structures & Algorithms, Operating Systems

Instructor
09/2003-06/2004

Shariati Faculty of Engineering, Tehran, Iran
Computer Architecture

Instructor
01/2004-03/2004

Instructor, Applied Science University, Tehran, Iran
Computer Programming

Instructor
07/2001-09/2003

Bamdad Computer Co., Tehran, Iran
Training and Support Section
Informix SQL, Introduction to Computer Networks, Solaris 2.x Concepts, Unix Administration

Presentations and Talks

Power-Aware Signal Processing in Body Sensor Networks
HotMobile Doctoral Consortium, Santa Cruz, CA, February 2009
A Phonological Expression for Physical Movement Monitoring in Body Sensor Networks
MASS, Atlanta, GA, September 2008
Body Sensor Networks for Health-care Monitoring: Premises, Challenges and Prospective
BodyNets, Tempe, AZ, March 2008
Body Sensor Networks to Evaluate Standing Balance: Interpreting Muscular Activities Based on Inertial Sensors
HealthNet, Breckenridge, CO, June 2008
Body Sensor Networks: Signal Processing for Power Optimization (poster presentation)
HotMobile, Santa Cruz, CA, February 2009
Introduction to Body Sensor Networks (poster presentation)
UT-Dallas Graduate Research Day, Dallas, TX, December 2008

Distinction and Awards

First prize poster presentation award at HotMobile 2009
University of Texas at Dallas ECS scholarship award since 2007
Ranked 4th among 4,000 participants in nationwide M.S. entrance exam, Iran, 1998
Ranked 59th among 300,000 participants in nationwide universities entrance exam, Iran, 1993

Professional Activities

Committee	The Fifth International Conference on Body Area Networks (BodyNets 2010), Program Track Chair The 11 th International Conference on Ubiquitous Computing (UbiComp 2009) IEEE Transactions on Information Technology in Biomedicine (TITB) Special Issue on Affective and Pervasive Computing for Healthcare, 2009
Reviewer	Special Issue on Personal Health Systems, 2009 Special Issue on Body Sensor Networks, 2009 IEEE International Symposium on Circuits and Systems (ISCAS 2007) Book Chapter - Book on Pervasive and Smart Technologies for Healthcare: Ubiquitous Methodologies and Tools, Edited by Antonio Coronato & Giuseppe De Pietro, IGI Global, 2009
Membership	Institute of Electrical and Electronics Engineers (IEEE) Computer Society, Student Member, Since 2007 Association for Computing Machinery (ACM), Student Member, Since 2008

Skills

Programming Languages: C, C++, Nes C, MPI, Perl, Awk, Sed, Assembly, SQL
Modeling/Simulation Environments: MATLAB, Simulink, SPICE, TinyOS, Model Sim
Operating Systems: Administrator and professional user of SUN OS, Linux, SCO Unix, MS Windows
Database Management Systems: Informix Online, Oracle, SQL Server, MS-Access
Hardware Modeling Languages: VHDL, Verilog