

DAVOOD SHAMSI

Ph.D. Student

Rice University, Department of ECE
6100 Main St. MS-366, Houston, TX 77005
Tel: 281-827-3486
Email: davood@rice.edu
<http://www.ece.rice.edu/~ds2/>

Education

Rice University. Houston, TX, USA (August 2006)

Master of Science (MS), Electrical and Computer Engineering

GPA: 4.16/4 (A+ is 4.33), Graduation Date: May, 2008

Sharif University of Technology. Tehran, Iran (August 2001-Jun 2006)

Bachelor of Science (BSc), Electrical Engineering (Dual Degree)

Bachelor of Science (BSc), Mathematics

Thesis: Constructing Optical Orthogonal Code (OOC) with cross correlation equals 2.

Supervisor: Prof. J. A. Salehi

GPA: 17.82/20 (overall)

Alameh Helli High School. Tehran, Iran (August 1997-Jun 2001)

Under supervision of NODET (National Organization for Developing Exceptional Talents)

Honors and Awards

- Rice University graduate fellowship.
- Ranked 3rd in National Statistics Olympiad. Iran, summer 2006
- Ranked 4th among 1,500 participants in the university entrance exam for MS degree in Mechatronics Engineering major, Iran, 2005
- Ranked 1st among undergraduate mathematics students. Sharif University of Technology
- Ranked 53rd among 350,000 participants in the Iranian national university entrance exam, 2001

Publications

[1] *D. Shamsi, F. Koushanfar, M. Potkonjak*, "Challenging Benchmark for Location Discovery in Ad Hoc Networks: Foundations and Applications" Submitted to Mobihoc 2008.

[2] *D. Shamsi, F. Koushanfar*, "Lifetime Optimization Using Energy Allocation in Wireless Ad-hoc Networks" Submitted to IEEE/ACM transactions on networking.

[3] *K. Amiri, D. Shamsi, B. Aazhang, J. R. Cavallaro*, "Adaptive Codebook for Beamforming in Limited Feedback MIMO Systems" submitted to CISS 2008.

[4] *D. Shamsi, F. Koushanfar*, "How challenging is modeling of a data set?" 3rd Lehmann Symposium, May 2007.

[5] *D. Shamsi, M. B. Zadeh*, "Adaptive Time-domain Signal Estimation for Multi-Microphone Speech Enhancement" , *IST, Shiraz*, Sep. 2005.

[6] *M. Zargham, D. Shamsi, M. R. Pakravan*, "Maximum Angle Base (MAB) Flooding for Ad-hoc Sensor Network" , *IST, Shiraz*, Sep. 2005.

Current Research Projects

Chip Tomography by Compressed Sensing

This project addresses manufacturing process variation in VLSI. I have used compressed sensing to find gate-level variations by small number of power measurements (norm one optimization).

Benchmarks for the Localization Problem

This project addresses constructing the comprehensive and challenging benchmark data set for the ad-hoc location discovery (LD). I have studied the complexity of the problem for sparse and dense networks. The constructed benchmarks are available online: <http://www.ruf.rice.edu/~ds2/benchLD/>. Using graph edge vectors as the main variables, I proposed a new formulation of the localization problem. Then I relaxed it to semi-definite programming (SDP).

Optimal Energy Distribution in Ad-hoc Networks

In this project, I found an optimal energy distribution in the ad-hoc networks such that it maximizes the lifetime of the networks while shortest path routing is used.

Prior Research Experience

Advance Communications Research Institute (ACRI). Tehran, Iran

Electrical Engineering Department, Sharif University of Technology

Researcher: October, 2004. June, 2005

- Adaptive learning algorithms..
- Implementation of GSVD and Generalized Sidelobe Canceller (GSC) for multi-channel noise reduction.
- Introducing new method for using adaptive filter in wavelet domain.

Center of Excellent in Design, Robotics, and Automation (CEDRA). Tehran, Iran

Mechanical Engineering Department, Sharif University of Technology

Leader of "Image Processing and software" team in "Sharif Humanoid Robot" Project: May, 2003- August, 2004

- Applying leaning algorithm such as reinforcement learning to an humanoid robot (both simulation and real robot)
- Implementation of Edge Detection and 3D object Detection algorithms.

Other Experience

- Constructing Optical Orthogonal Code with cross correlation equals 2. Supervisor: Prof. J. A. Salehi
- Leader of Electronic team of a warrior robot in Robot War Competition. Summer, 2003
- Member of "Snake Crawl Modeling Robot" Project. Summer, 2002
- Member of "Intelligent Mouse Robot" team. February, 2001-July, 2002
- Multi-Microphone Noise Reduction
- Increasing Focal Depth
- Flooding Algorithms in Sensor Networks
- Image Compression Methods: JPEG
- Learning Algorithms: Reinforcement Learning

Teaching Experience

- Signal and Systems, Fall 2007, Prof. R. Baraniuk
- Linear Algebra, Spring 2005. Prof. Fotuhi, Sharif University
- Engineering Mathematics (Fall 2003, Fall 2005), Prof. M. Mobed, Sharif University

Talks

What is liar paradox?

Sharif University, Mathematics Department, spring 2003

Is JPEG an efficient compression method?

Sharif University, Electrical Engineering Department, Fall 2002

Skills

Computer Languages:

Proficient in C, C++, Visual C++, Pascal, Delphi, HTML, Java, J2EE, LATEX, PHP, TCL, Qt
Familiar with LISP, Perl, SQL, JSP, OTCL, Basic, C#, ASP, VHDL

Tools and Systems:

Proficient in MATLAB, SeDuMi, CPLEX, Maple, Mathematica, HSpice, Orcad, NS2, R+
Familiar with Xfig, Corel Draw, GnuPlot