

AMIRMOHAMMAD ROOSHENAS (PEDRAM)

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RESEARCH INTERESTS

Sum-Product Networks, Probabilistic Graphical Models, Machine Learning, Applications of Machine Learning in Wireless Sensor Networks

EDUCATION

- Sept. 2011 - present Ph.D. in Computer Science
University of Oregon, Eugene, Oregon
GPA: 4.07/4.33
Courses: Probabilistic Graphical Models, Machine Learning, BioInformatics, Algorithm, Differential Geometry, Automata Theory, Distributed Operating Systems, Computer Networks, and Game Theory
- Feb. 2010 M.Sc. in Computer Engineering (Information Technology)
Sharif University of Technology, Tehran, Iran
Thesis: Data Reduction and Aggregation in Wireless Sensor Networks
GPA: 18.58/20.0
Courses: Statistical Pattern Recognition, Stochastic Processes, Advanced Computer Networks, Mobile Computation, Database Security, Performance Evaluation of Computer Systems, Modeling and Design of Computer Networks, and Advanced Network Security
- Jun. 2007 BS in Computer Engineering
Shahid Beheshti University, Tehran, Iran
Thesis: A Survey on Model Driven Architecture
- Jul. 2001 High School
SAMPAD High Schools (High Schools for the Development of Exceptional Talents), Karaj branch (Shahid Soltani), Karaj, Iran
Major: Physics and Math

RESEARCH EXPERIENCES

- June. 2012 - present **Structural Learning in Probabilistic Graphical Models**
Department of Computer and Information Science, University of Oregon
Research Advisor: [Prof. Daniel Lowd](#)

Developed algorithms for learning high-treewidth Markov networks with tractable inference and Sum-Product Networks (SPNs). I performed an empirical evaluation on 20 datasets, comparing to several state-of-the-art baselines. I also contributed toward the development of the Libra toolkit, an open source toolkit for learning and inference.

Sept. 2008 - Feb. 2011

Energy efficient framework for Wireless Sensor Networks

Digital Media Lab, Sharif University of Technology

Research Advisor: Prof. Hamid R. Rabiee

This project involves designing a scalable algorithm for data reduction in wireless sensor networks. For this purpose, I integrated Collective Principal Component Analysis and other mathematical tools into my data reduction algorithm. To support the algorithm, I developed a routing protocol which builds an aggregation tree and gathers data based on it. Finally, I implemented the framework on TOSSIM as well as real MicaZ motes.

Sept. 2002 - Jul. 2006

2D Soccer Simulation Team: SBC++

Robocup Lab, Shahid Beheshti University

Research Advisor: Prof. Eslam Nazemi

For our team, we developed a soccer-playing agent using behavioural networks and reinforcement learning.

WORK EXPERIENCES

Apr. 2010 - Aug. 2011

Software Engineer, Maharan Engineering Group - Tehran, Iran

Activities: Developed a safe network protocol stack based on EN standard for railway systems. In addition, I wrote a plan for Software Error Effect Analysis (SEEA) and I was responsible for the implementation of SEEA in the project.

Sept. 2005 - Sep. 2007

Project Manager, Sepidan System Idea - Tehran, Iran

Activities: Developed mobile social network application based on Flash and J2EE.

Programming and Script Languages: Java, JavaScript, ActionScript.

Technologies: J2ME and Flash lite for mobile layer; Flash for application of client side; Hibernate for persistent layer; Facelet and JSF for web client; Spring for business layer; AndroMDA for managing and model based code generation.

Tools: MagicDraw for modelling and design; CVS for version controlling; Macromedia Flash for producing Flash based application; Apache Tomcat for web server; MySql for database server.

Jun. 2004 - Apr. 2005

Software Developer, Eimaa Inc. - Tehran, Iran

Activities: Worked on Multimedia Message Service Enhancement Server, including system design and develop, performance tuning, server scaling, and server robustness.

Programming and Script Languages: C++, Java.

Technologies: SOAP for communication protocol; Applet for management interface; Ejb for business layer; RMI for inter servers communication protocol; ANT for development management; CORBA for inter applications communication protocol (between C++ and Java).

Tools: JProfiler for performance monitoring; WebLogic and JBoss for application server; MySql for database server.

Jun. 2003 - May. 2004 **Linux System Developer, Maharan Engineering Group. Tehran, Iran**

Activities: Tuned Linux kernel for embedded system; worked on remote booting for disk less systems; developed driver for CAN-PCI cards.

Programming and Script Languages: C++, bash shell script.

TEACHING EXPERIENCES

Spring 2013	Lab instructor for “Fluency with Information Technology”, University of Oregon.
Winter 2013	Teaching Assistant for “Intro to Algorithm”, University of Oregon.
Fall 2012	Teaching Assistant for “Intro to Artificial Intelligence”, University of Oregon.
Spring 2012	Lab instructor for “Intro to Computer Networks”, University of Oregon.
Winter 2012	Lab instructor for “Intro to Programming and Algorithms”, University of Oregon.
Fall 2011	Teaching Assistant for “Intermediate Data Structure”, University of Oregon.
Spring 2009	Lecturer for “Matlab Programming for Engineers” , Malek-Ashtar University of Technology.
Spring 2009	Teaching Assistant for “Computer Networks”, Sharif University of Technology.

HONORS AND AWARDS

2013	Got Gurdeep Pall Scholarship from Department of Computer Science, University of Oregon.
2013	Got Clarence and Lucille Dunbar Scholarship from College of Art and Sciences, University of Oregon.
2007	Ranked 34th among more than 8000 participants of Iran’s national graduate university entrance exam.
2006	Ranked 4th in AUT-Open Robocup 2D Soccer Simulation competitions, Tehran, Iran, May 2006.
2003	Qualified for RoboCup Soccer Simulation 2D competitions, Padua, Italy, 2003.
2001	Ranked 517th among more than 300000 participants of Iran’s national university entrance exam.

PUBLICATIONS

2014	A. Rooshenas, D. Lowd, Learning, Learning Sum-Product Networks with Direct and Indirect Variable Interactions. In Proc. of The 31st International Conference on Machine Learning (ICML’14), 2014.
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2013 D. Lowd, A. Rooshenas, Learning Markov Networks with Arithmetic Circuits. In Proc. of The Sixteenth International Conference on Artificial Intelligence and Statistics (AISTats'13), 2013.

2010 A. Rooshenas, H. R. Rabiee, A. Movaghar. M. Y. Naderi. Reducing The Data Transmission in Wireless Sensor Networks Using The Principal Component Analysis. In Proc. of The Sixth International Conference on Intelligent Sensors, Sensor Networks and Information Processing (ISSNIP'10), 2010.

2009 Z. Riazi, A. Rooshenas, A.Rahmani. Reducing Power Consumption Using Estimation for Scheduling in Wireless Sensor Networks. CSICC 2009. Tehran, Iran, 2009. (in Farsi).

TECHNICAL SKILLS

Programming	Extensively used for several years: OCaml, MATLAB, C, C++, Java, Python, and Shell Scripting; Comfortable with: Tcl, Perl, PHP, and Javascript
Simulation	NS-2, Omnet++ and TOSSIM
Database	Oracle 9i, 10g, MySql 3.x, 4.x, 5.x
IDE	Eclipse, IntelliJIDEA and GVIM
Modelling	RSA and MagicDraw
Text	LaTeX and MsWord