AMIR HEJAZI

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Education

- **University of Toronto (GPA: 3.92/4.0),** Toronto, ON, Canada
  Ph.D. in Numerical Analysis, Department of Computer Science
  Supervisor: Prof. Kenneth R. Jackson
  Thesis: in progress
- **University of Toronto (GPA: 4.0/4.0),** Toronto, ON, Canada
  M.A.Sc. in Networking, Department of Electrical and Computer Engineering
  Supervisor: Prof. Ben Liang
  Thesis: Throughput Analysis of Multiple Access Relay Channel Under Collision Avoiding Relaying Schemes
- **Sharif University of Technology (GPA: 18.1/20.0),** Tehran, Iran
  B.Sc. in Communications, Department of Electrical Engineering
  Supervisor: Prof. Masoud Babaeizadeh
  Thesis: Application of Sparse Decomposition in Signal Reconstruction

Honors and Awards

- Queen Elizabeth II Scholarship ($15,000 per year) 2015-2016
- Wolfond Fellowship ($10,000 per year) 2013-2014
- Guaranteed Funding of CS department at University of Toronto ($22,977 per year) 2011-2015
- Edward S. Rogers Sr. Scholarship (≈$33,000 per year) 2008-2010
- Ranked 74^{th} in the universities entrance exam among more than 2,000,000 participants in Iran 2004
- Bronze medal winner of the 21^{st} Mathematics Olympiad in Iran 2003

Research Experience

- **Numerical Analysis Group at University of Toronto** January 2013 - Present
  - Conducting research to improve the efficiency of valuation for large portfolios of variable annuities.
- **Computer Networks Group at University of Toronto** 2010 June- 2013 December
  - Conducted research to improve the access delay performance of CSMA networks.
  - Presented partial of my results at Research In Action (RIA) showcase 2013.
- **Wireless Computing Lab (WHIMSIC) at University of Toronto** 2008 - 2010
  - Conducted research on theory and practice of multiple access relay networks as my Masters
  - Developed analytical frameworks to determine the achievable rate regions for the uplink of a multi-source single-channel relay-aided wireless system where transmissions are scheduled to avoid collisions
  - Documented and Published part of my research results at *main conference* of INFOCOM 2010.
- **Electronic Research Center (ERC) at Sharif University of Technology** 2006 - 2008
  - Conducted research in the area of speech processing under the supervision of Dr. Ghaemmaghami (Dean of the ERC)
  - Developed and Implemented a novel method for recognizing persian digits; we published our result in ISPACS 2008
  - Worked on Hidden Markov Model and Support Vector Machine methods for speech recognition
  - Conducted a survey research on useful approaches in preparing a good, reliable database
  - Worked on speech synthesize methods
- **Advanced Communication Research Institute (ACRI): Multimedia Lab at Sharif University of Technology** 2007 - 2008
  - Conducted research in collaborating with Dr. M. A. Akhaee (Phd candidate at that time), and supervised by Prof. Marvasti
  - Implemented a novel speech denoising system that incorporated adaptive filters to reduce the complexity of underlying denoising algorithm and improve the quality of output
  - Provided rigorous analysis of a novel Image water marking system that we developed at ACRI; my analysis was praised by reviewers as the main highlight of our ICIP 2008 paper
  - Conducted research on blind, reversible audio watermarking

Computer Skills C, C++, Java, MATLAB, Python, Microsoft Office Suite (Excel, Word, Visio, PowerPoint), Javascript, SIMULINK, Assembly, PSpice, and LaTeX.

Work Experience

- **Sr. Business Analyst at Manulife Financial** 2013 December - 2014 July
  - Provided consultation for implementation of real-time variable annuity hedging system; Provided consultation to businnes stakeholders on solution design and implementation details; Worked closely with business stakeholders to translate high-level business requirements to simple functional specifications for a Complex Event Processing (CEP) engine
  - Wrote a detailed document on design architecture and internal processes of hedging system that became a reference for training new hires (BAs, developers, QAs) and shortened training time by weeks
  - Worked closely with lead QA to perform root cause analysis for defects, and effectively communicate them to developers
  - Member of a BA task force whose goal was to provide consultation to improve Business Capabilty Office's (BCO) Sharepoint; the group managed to provide an effective strategy that resolved at least 75% of problems
- **Software Developer in Human Factor and Applied Statistics Labs at University of Toronto** 2012 April-July
  - Developed software and algorithms for automated pre-processing of raw data; the goal of the project was to predict the behavior of drivers based on the data collected on speed, acceleration, turning rate and etc. from a device mounted on the driver's car
  - Developed a graphical user interface for post-processing of data
  - Recognized as an exceptional talent by the employer (Dr. Birsen Donmez) and industrial partners of project (Skymeter Corporation)
- **Research Assistant in Computer Networks Group at University of Toronto** Fall 2010
  - Analytical research on distributed database systems
  - Developed software for automated and distributed process management and configuration; the goal of project was to develop a fast, fault tolerant micro-blogging application called "Woznew" which is able to handle millions of read/write operation per second
- **Summer Internship at Ati Pooyesh Communication Co. (APCO)** Summer 2007
  - Prepared a detailed analytical report on operation of GSM-R systems
- **Secretary of IEEE Student Branch at Sharif University of Technology** 2006-2008
  - Because of my marketing and organizational efforts, we were able to establish the IEEE Student Branch at Sharif University and registered more than 30 undergraduate and graduate students

Publications

- **Book Chapters**
  - "The Technology of Displays" by Dr. Behnia, Tehran: Nass, 2007 (in persian). I contributed to chapters on OLED displays and E-PAPER displays
- **Referred Conference Papers**
  - **Hejazi, S.A.**; Liang, B.; "Throughput Analysis of Multiple Access Relay Channel under Collision Model," In the proceeding of 29th IEEE International Conference on Computer Communications, 2010 (INFOCOM 2010, main conference), pp.1756-1764, Mar. 2010
  - Mahabadi, A.A. ; **Hejazi, S.A. ;** Akhaee, M.A. ; Eshghi, M., "A Combinational Adaptive Noise Canceller Using Filter Bank," In the proceeding of 6^{th} International Symposium on Image and Signal Processing and Analysis, 2009 (ISPA 2009). pp.461-464, Sep. 2009
  - **Hejazi, S.A.;** Kazemi, R.; Ghaemmaghami, S., "Isolated Persian digit recognition using a hybrid HMM-SVM," In the proceeding of International Symposium on Intelligent Signal Processing and Communications Systems, 2008 (ISPACS 2008). pp.1-4, Feb. 2009
  - Sahraeian, S.M.E.; Akhaee, M.A.; **Hejazi, S.A.;** Marvasti, F., "Contourlet based image watermarking using optimum detector in the noisy environment," In the proceeding of 15th IEEE International Conference on Image Processing, 2008 (ICIP 2008). pp.429-432, Oct. 2008

Teaching Experience

- **Instructor, University of Toronto**
  - CSC236 Introduction to the Theory of Computation — Fall 2015
- **Instructor, Private and Shahid Dastgheib High School**
  - Instructor of Number Theory and Algebra courses at Shahid dastgheib high school (NODET) — 2003- 2005
  - Part time instructor of Calculus, Geometry and Algebra — 2006-2008
- **Teaching assistant, University of Toronto**
  - MAT187 Calculus II — Winter 2015, 2016
  - MMF2021 Numerical Methods for Finance — Fall 2015
  - MAT186 Calculus I — Fall 2014, 2015
  - CSCC73 Algorithm Design and Analysis — Fall 2015
  - MIE250 Fundamentals of Object Oriented Programming — Fall 2014, 2015
  - CSC263 Data Structure and Analysis — Winter 2015, Summer 2013
  - CSCB63 Design and Analysis of Data Structures — Winter 2015
  - CSC458/2209 Computer Networks — Fall 2014, 2013, 2011
  - CSC358 Introduction to Computer Networks — Winter 2013, 2012
  - CSC108 Introduction To Computer Programming — Winter 2013
  - CSC190 Computer Algorithms and Data Structures — Winter 2013, 2011
  - CSC165 Mathematical Expression and Reasoning for Computer Science — Fall 2012
  - CSC310 Information Theory — Fall 2011
  - CSC104 The Why and How of Computing — Winter 2011
  - ECE302 Probability and Random Processes — Winter 2010
- **Teaching assistant, Sharif University of Technology**
  - Fundamental of Electrical Engineering I — Fall 2007, 2006
  - Signals and Systems — Spring 2007
  - Probability and Statistics — Fall 2006

  Responsibilities include: Preparing and marking assignments and course projects, leading lab tutorials, presenting tutorials, and grading midterm and final exams.

Professional Membership

- Student Member of IEEE — 2007 - Present
- Member of the scientific branch of Resana (extracurricular club for electrical engineering students at Sharif University of Technology) — 2006-2008
- Member of the Scientific and Submission committee in the 3^{rd} Iranian seminar on EWIS, Sharif University of Technology — Fall 2006
- Board member of the Mathematics Olympiad committee at the Shahid Dastgheib high school — 2003-2006

Hobbies Gym, Speed Skating, Listening to music, making objects out of paper(ranked 2^{nd} in the 2009 Redbull paperwings competition in Canada).