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AREZOU KESHAVARZ

EDUCATION

September 2007 – Present | Stanford University | Stanford, CA

Electrical Engineering

- Masters of Applied Science

Relevant Courses: Convex Optimization, Dynamic Programming and Control, Information Theory, Linear Dynamical Systems, Statistical Signal Processing, Digital Communication, Digital Signal Processing

September 2003 – June 2007 | University of Toronto | Toronto, ON

Electrical Engineering

- Bachelor of Applied Science **GPA**: 3.93 **Technical GPA:** 4.00 **Rank**: 1-3

RELEVANT EXPERIENCE

June 2006 – August 2006 | *Wireless Sensor Networks Lab at Stanford University* | Stanford, CA

Research Assistant

- Conducted research on **Smart Home Care Networks** to develop a system which would allow caregivers to monitor elderly patients. Collaborative reasoning is used to arrive at the final judgment.
  - The work if filed for patent and its results are published in ***4th International Workshop on Video Surveillance & Sensor Networks***, and at the ***Workshop on Distributed Smart Cameras (DSC06).***

May 2004 – June 2006 | *Artificial Perception Laboratory at University of Toronto* | Toronto, ON

Government-funded Research Assistant

- Conducted research on Acoustic Object Tracking techniques as part of a larger hardware-based all-in-one system aimed to perform sound localization, speech enhancement and voice recognition.
- Worked on phase-based Speech Enhancement techniques, specifically to develop a relationship between signal-to-noise ratio and phase for microphone pairs
- Designed and implemented a Sound Localization-based adaptive user interface, enabling navigation through a set of objects by localizing the sound source in space. (Applications: navigational interface for the disabled, stage presentations)
  - The results of the sound localization-based adaptive interface research are submitted in the form of a paper published in the ***IEEE International Symposium on Multimedia***
- Successfully established a remote real-time robot navigation platform through the TCP/IP connection using MATLAB. The platform was used by 19 students in their design project competition.
- Successfully established a remote navigation system for a helicopter through hand movements in 3D space using MATLAB.

September 2006 – June 2007 | *IEEE Student Branch at University of Toronto* | Toronto, ON

IEEE Vice Chair

- Coordinated and managed various events to increase academic and professional awareness among the ECE class. The main events hosted in the previous semester were the **IEEE Graduate Information Sessions** (9 events spread out during a week) and the **IEEE Wine & Cheese recruitment event**.

AWARDS

- **Stanford Graduate Fellowship (SGF)** 2007-2010
- **National Science and Engineering Research Council Post-Graduate Fellowship (Canada)** 2007-2009
- **Three-times-winner of the Adel S. Sedra Outstanding Student Award** – 2004, 2005 and 2006
- **ECE NSERC USRA Scholarship** – 2005, 2006
- **Walberg Undergraduate Scholarship –** 2006
- **Two-times-winner of the University of Toronto Scholar Award** – July 2004 and 2005

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PROJECTS

- **Optimal Trading Strategy of an Informed Trader in the Presence of a less-informed Competitor**
  Course: Independent Study with Professor Van Roy April 2008 – September 2008
  - Calculating the optimal trading strategy for both traders resulting in a Perfect Bayesian Equilibrium
  - Analyzed and formulated the problem using Dynamic Programming
  - Worked on an algorithm to calculate the PBE numerically using DP
- **Modiface: A Face Fusion Application** May 2006 – May 2007

Course: Final year Design Project
  - Design and implementation of an application to simulate the results of a cosmetic surgery.
  - Research involved face detection, feature localization and feature blending techniques
  - The result of the surgery is simulated using image processing performed in MATLAB.
  - An interactive web-application is designed to display the results, available at **Modiface.com**.
- **Sound Localization: human ears vs. computers** September 2006 – November 2006

Course: Sensory Communications
  - Performed a thorough study of the quality of sound localization as performed automatically by a computer versus human ears.
- **Optical Telephone** September 2005 – November 2005

Course: Analog Electronics
  - Designed and implemented an optical telephone, composed of a transmitter, receiver, and optical transmission unit.
- **Sound and Speech Processing** March 2005 – April 2005

Course: Computer Organization
  - Designed and implemented a system, using **Assembly**, which recorded and performed various operations on sound signals.
  - Some features of this project are up-sampling, down-sampling and reverse playback.
- **Server Design and Implementation** January 2005 – April 2005

Course: Engineering Design II
  - Established an HTTP/1.1 compatible server successfully using C++ through team collaboration in a group of five students
- **FPGA Implementation of Tic-Tac-Toe** November 2005

Course: Digital Circuit Design
  - Created an FPGA version of the famous Tic-Tac-Toe mind game using Verilog.
  - The results of the game were shown on the VGA display, which was controlled using an advanced state machine design.
- **Scanner Robot** March 2003 – May 2003

Course: Secondary School Computer Engineering course
  - Devised and built a scanner robot using Lego Mindstorms ®

SKILLS

- **MATLAB, CVX**: proficient with various toolboxes through previous research and course work
- **JavaScript, HTML, PHP, Perl:** through undergraduate final design project
- **Java, C++, PISCES, PSpice, Orcad Capture, Verilog, Assembly:** through course projects
- **LaTex, Microsoft Office**

INTERESTS, ACTIVITIES AND COMMUNITIES

- Director of Business Alliance – Persian Student Association at Stanford (2008-209)
- Vice chair of the IEEE student branch at the University of Toronto (2006-2007)
- Member of the Dean's Circle (2003-2007)
- Member of the Golden Key International Honor Society
- Enjoy photography, running, hiking, and skiing
- Other interests include Literature, Economics, Cognitive Science, and Philosophy of Mind