Melissa Farinaz Mozifian

Email: melissafm24@gmail.com

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SUMMARY Graduate student at Waterloo Autonomous Vehicles Laboratory.

EDUCATION

MASc Mechanical and Mechantronics Engineering — May 2016 – Present
University of Waterloo — Waterloo, Canada

Core Modules: Statistical Learning, Machine Learning, Autonomous Mobile Robots, Deep Learning Reading Course.
Research Fcous: Computer vision and machine learning for robotics and autonomous vehicles.

B.Sc. (Honours) Computer Science — September 2010 – June 2014
University of St Andrews — St Andrews, Scotland

First Class Honours Degree.
Core Modules: Data Encoding, Software Engineering, Operating Systems, Artificial Intelligence, Component Technology, Computational Complexity, Multimedia, Human Computer Interaction, Logic & Software Verification, Constraint Programming, Distributed Systems and Computer Graphics.

EXPERIENCE

Teaching Assistant — January 2017 – Present
University of Waterloo — Waterloo, Canada

Programming for Performance (ECE 459) using APIs such OpenMP and OpenCL.

Software Engineer — September 2015 – April 2016
Toshiba Medical Visualization Systems Ltd — Edinburgh, UK

Working as part of the Image Analysis team to develop image analysis algorithms. My current project focuses on developing algorithms for diagnostic ultrasound imaging application, to perform automatic follicle quantification from 3D ultrasound data.

Graduate Software Engineer — October 2014 – September 2015
Toshiba Medical Visualization Systems Ltd — Edinburgh, UK

Worked as an application developer delivering medical software. My role involved providing API and framework support including bug fixes, implementing framework features and writing unit tests. My main project involved developing clinical application using Nvidia's most advanced GPU and software development kit to render 2D and 3D medical images using the GPU.

Software Engineer Intern — June 2014 – August 2014
Toshiba Medical Visualization Systems Ltd — Edinburgh, UK

Worked as part of the Image Analysis team, developing strategies for detecting malfunctions in Toshiba CT scanner hardware by applying software algorithms that analyse abnormalities in sensor data. A patent application was submitted as the result of the developed strategies.

Computer Science Lab Demonstrator — February 2014 – April 2014
School of Computer Science, University of St Andrews — St Andrews, Scotland

Worked as a lab demonstrator for a program called "Code First Girls", teaching coding to non-computer science female students. This program aims to attract more women in tech.

Research Engineering Intern May 2013 – August 2013
Adobe Systems, Inc Edinburgh, UK

Developed a plug-in prototype to evaluate the feasibility of extending Adobe Photoshop to support online collaborative photo editing using Adobe Creative Cloud.

Research Assistant May 2012 – July 2012
School of Computer Science, University of St Andrews St Andrews, Scotland

Research Title: Secure SQL Queries Using Dependent Types
Worked with Dr. Edwin Brady to develop a database library for an experimental programming language called Idris. Idris is a general purpose, purely functional language similar to Haskell. I was responsible for implementing an SQLite bridge for Idris to withstand SQL injection attacks.

AWARDS

Academic Prizes & Recognition

- University of Waterloo Graduate Research Studentship (GRS)
- University of Waterloo International Masters Student Award
- Dean's List, University of St Andrews
- Rector's Fund Scholarship Recipient - Was awarded the Scholarship offering a grant to establish an innovative and useful resource for students taking up internships.
- BCSWomen Lovelace Colloquium Finalist - Was awarded a travel grant to attend and present my bachelor's thesis project as a poster. This annual event is organised by the British Computer Society (BCS) and sponsored by Google and academic institutions.

Technical Interests Cognitive Robotics, Autonomous Vehicles, Artificial Intelligence, Machine Learning, Human Robotics Interaction, Affective Computing, Evolutionary Robotics

Programming Languages Python, C++, C, Java, Matlab, JavaScript, ObjectiveC, PHP, Haskell

Programming Libraries ROS, OpenCV, Tensorflow, Keras, OpenGL, iOS, ZeroMQ, NumPy, SciPy, Matplotlib, Scikit-learn, Nvidia CUDA, OpenCL

Academic And Personal Projects

Hexy DIY Robot Kit 2015 - present

Implementing obstacle detection algorithms such as RRT's and potential fields on Hexy.

Pulse Detector iOS app 2015

Developed an emotion detection iOS app. The alpha version performs an automated and non-contact pulse detection.

Final Year Dissertation 2013 - 2014

Developed a program to detect basic human emotions such as happiness, sadness and excitement from a subject's facial expression and physiological measure of pulse.

Junior Honors (Group) Project 2012 - 2013

Developed a virtual representation of St Andrews using the OpenSimulator software. The virtual representation was augmented with real-world information and artificial intelligence such as path planning.

Software Engineering Team Project 2012

Scrum methodology was followed to develop a web-based equity screening application for amateur investors to analyse financial data of stocks.

Advanced Programming Team Projects 2011

Text Adventure and Core War games written in Haskell, a simple File Transfer Protocol (FTP) client and a news browser application to navigate social media sites such as Reddit and Twitter in Python.

Academic Achievements

Theses

1. **Mozifian M** (2014): **"Affective Mirror: Automated Emotion Detection Through Photoplethysmography & Facial Expression Analysis."**, Undergraduate Thesis, University of St Andrews

Posters & Presentations

1. **Mozifian M**(2014): Affective Mirror: Automated Emotion Detection Through Photoplethysmography & Facial Expression Analysis, BCSWomen Lovelace Colloquium, Aberystwyth University, UK

Project Repository Github

References Available upon request.