Omid **Karimpour**

Master of Engineering · Ryerson University

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Work Experience

Fleming College

Peterborough, ON

Contract Faculty — *Jan. 2019 - Present*

- Applied projects Mentorship and Instructing Electricity Labs.
  - Responsible for Project Managment, Timeline, meetings, and meeting sponsor expectation.
  - supervising students during lab sections, evaluating their performance in labs.

Network Centric Applied Research Team

Toronto, ON

Research Assistant — *Aug. 2018 - Present*

- Developing and implementing a modified Pioneer 2DX Autonomous Mobile Robot using 2d Lidar, localization, SLAM, mapping, path planning, and obstacle avoidence.
  - comparision of various SLAM systems using fusion sensors.
  - Premapping and SLAM in Search & Rescue Field research.
  - Stair mapping, glass detection, and navigation, investigation.
  - Full ROS Navigation system and Gazebo simulation in indoor environment using RPLidar.

McMaster University (Smart Joint Monitoring Lab)

Hamilton, ON

Scholar — *Jan. 2016 - Sep. 2016*

- Worked with **Prof. Jamal Deen** to analyze gait kinematics and gait kinetics. This led to the Research on Smart Joint Methods based on adding gyroscopes, force plates, EMG, muscle force. Methods comparision and further researched on Slavelberg, Former-Cordero estimate 3D ground reaction forces (GRFs), and optimal placement of accelerometers.
  - Gait analysis, accuracy and reliability of Smart Joint Methods & Optimal Sensors Placement
  - Collating selection of approaches such as Bro, Intille and Gjoreski

SDI Marketing (TMS)

Newmarket, ON

Manager & Lead Advisor — *Sep. 2015 - Nov. 2018*

- Manage and oversee the operations of multiple stores. Developing, performing incentives and training for District's employees & lead advisors
  - Multiple award winner for top performance
  - Generating a 300% growth in revenue
  - Reversed store's downward spiral

Research Experience

Ryerson University

Toronto, ON

Master of Engineering at EE Department — *Sep. 2015 - Present*

- **Prediction models for digit recognition, car acceptability, wine quality, & water level**
  Advisor: Prof. Farah Mohammadi
  - Modeling and simulating with MATLAB on different real world datasets
  - Creating a Neural Network, SVM Prediction Model, K-means clustering for Image dimensionality reduction

- **Lines, & circles detection in noisy environment with 5 pixels accuracy**
  Advisor: Dr. Lev Kirischian
  - Blurring Process, Edge detection, Hough transform algorithms, and etc with OpenCV
  - Comparison of Hough transform, Fast, Random hough transform, and Efficient randomized algorithm

Shahid Beheshti University

Tehran, Iran

Research Assistant at Electronics Lab — *Jan. 2012 - Jul. 2015*

- **The Bachelor Final Project: Designing, simulating and implementing CMOS amplifier with Beta-Multiplier Reference**
  Advisor: Prof. Hashemipour
  - High gain low noise CMOS amplifier design with a BMR utilizing Positive close loop feedback, Novel Cascade Currant Mirrors

- **Designing and implementing a ZigBee OEM Module Starter**
  Advisor: Prof. Jalali
  - Designing, optimizing, and implementing a ProBee ZE10 Starter using ARM Cortex M3
  - Sigma-Delta AD Converters analysis, the highway traffic measurment analysis using GPS mobile devices

Teaching Experience

2019	**Human Robot Interaction**, Graduate Assistant	*Ryerson university*
2019	**Final Project Mentorship**, Mentor	*Fleming College*
2019	**Electricity 1**, Lab Instructor	*Fleming College*
2012-15	**mathematical and physics**, Instructor	*Raadfar Academy*

Extracurricular Activity

IEEE (Institute of Electrical & Electronics Engineers)

Ryerson Student Branch

Member — *Nov. 2018 - PRESENT*

- Organizing a project showcase for faculties, Graduates, and undergraduates.
- Hosting a Improving Communications Skills for Engineers
- Participating and starting number of IEEE events such as Industry Night

Hardware-software co-design, DE2-Altera FPGA based, and Nios II SoPC Development

Embeded System

Member — *Sep. 2017 - Dec. 2017*

- Real-time scheduling techniques, concurrency, system on chip and hardware software codesign tools.
- Multitasking ARM Applications by using uVision and RTX, realtime scheduling and investigate RTOS using ARM Cortex M3.

Reliability evaluation & build in self repair of reconfigurable

Digital System Testing

Core Member — *Jan. 2017 - June. 2017*

- Reliability analysis & comparison of Hierarchical redundancy, Optimal repair, Coarse redundancy, Tile-based.
- Analyzed combinational and sequential circuit test generation methods. Memory, delay testing, and testability design methodology.

Architecture analysis and high-level synthesis of ASP of a VOP buffer

Architiectural Synthesis

Core Member — *Sep. 2012 - Dec. 2016*

- Analyze the fully pipelined variant of architecture to get the highest performance of ASP along with 32-bit Multi Cycle Processor design.
- Assess the economic aspects, power consumption, and VOP area, determined by the available memory bandwidth

Education

Ryerson University

Toronto, ON

M.Eng. in Electrical and Computer Engineering — *Aug. 2016 - Present*

Shahid Beheshti University (former National University of Iran)

Tehran, Iran

B.S. in Electrical and Computer Engineering — *Sep. 2010 - Jan 2015*

Skills

Programming	C/C++, Python, MATLAB, JAVA, VHDL, Verilog, LaTeX
Robotic Programming Tools	ROS (Robot Operating System), OpenCV
Analog Digital Design Tools	H-Spice, P-Spice
Smart Phone Programming	iOS (Swift), Android (JAVA)
Web	HTML, CSS, JS, php
Microcontrollers	AVR, ARM, FPGA, PLC
PCB Layout	Altium Designer

Honors & Awards

2018	**1st Place**, TMS, Certified for top revenue improvement, Eastern Canada	*GTA, ON*
2017	**1st Place**, TMS, Certified for top leadership, Eastern Canada	*GTA, ON*
2010	**Ranked Top 1%**, Mathematics and Physics among more than 178,000 students in Iranian nationwide university entrance examination (Konkoor).	*Tehran, Iran*
2008	**Accepted**, Iranian National Olympiad Competition in Mathematics	*Tehran, Iran*