

# Sara Ghaemi

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## Education

### MSc in Software Engineering and Intelligent Systems

University of Alberta

Sep 2018–Present

Edmonton, Canada

- Relevant Coursework: Machine Learning, Software Quality, Engineering Dependable Systems, Cyberphysical Systems
- GPA: 3.9/4 | Expected completion: Jan 2021

### BSc in Electrical Engineering, Electronics

Amirkabir University of Technology

Sep 2013–Feb 2018

Tehran, Iran

- Relevant Coursework: Multimedia Systems, Advanced Programming, Probability and Statistics, Computer Architecture and Microprocessors, Introduction to Computational Intelligence
- Total GPA: 3.5/4 via 140 credits (last 2 years: 3.82/4)

## Experience

### Research Assistant

Performant and Available Computing Systems (PACS) Lab, York University

Aug 2019–Present

Toronto, Canada

- Working on using blockchain technology, specially **Hyperledger Fabric** in serverless computing.
- Using **Django** framework to develop a web application for this project in **Python**.

### Coding Instructor

Alpha Coding Inc.

Dec 2019–Present

Toronto, Canada

- Teaching students **Python** and **Robotics**.
- Creating curriculum for beginner to advanced classes.

### Teaching Assistant

Object Oriented Programming from Sensors to Actuators Lab, York University

Jan 2020–May 2020

Toronto, Canada

- Supervised about 40 students in each lab to write different programming tasks in **Java**.

### Research Assistant

Dependable and Distributed Systems Lab, University of Alberta

Sep 2018–Aug 2019

Edmonton, Canada

- Working on using distributed ledger technology in transactive microgrids.
- Worked on performance analysis of DAG-based distributed teldger technologies, specially **IOTA**.

### Teaching Assistant

Introduction to Microprocessors Lab, University of Alberta

Jan 2019–Apr 2019

Edmonton, Canada

- Supervised about 30 students in each lab to program an NXP ColdFire microprocessor using assembly language.

### Research Assistant

Control of Multi-Vehicle Systems Lab, Amirkabir University of Technology

May 2014–Feb 2018

Tehran, Iran

- Developed different computer vision programs for localization and object detection of quadcopter and UGV robots.
- Collaborated with a team of 10 to integrate the programs into the robots.

### Teaching Assistant

Advanced Programming Course, Amirkabir University of Technology

Feb 2017–Jun 2017

Edmonton, Canada

- Taught **Python** programming language to about 25 undergraduate students.

### Chair of IEEE Student Branch (IEEE SB)

AmirKabir University of Technology

May 2015–Jul 2016

Tehran, Iran

- Led a team of 5 to plan and execute about 18 events, workshops, and student competitions.
- IEEE Amirkabir University SB recieved the "Student Branch Excellence Award" from IEEE Iran Section in May 2016.

**Robotics Teacher****Apr 2013-Sep 2014***Farzanegan 1(NODET) Highschool**Tehran, Iran*

- Taught an introductory course on robotics to 2 classes, including a total of about 30 students.
- Introduced concepts of AVR microcontrollers, C programming language and robotics tools to high school students with no background in programming.

**Technical Skills**

Programming Languages: Python, C/C++, MATLAB

Tools: Git, Docker, Travis CI, Hyperledger Fabric

**Publications**

Ghaemi, S., Khazaei, H., & Musilek, P. (2020). ChainFaaS: An Open Blockchain-based Serverless Platform. IEEE Access (Submitted)

Fan, C., Ghaemi, S., Khazaei, H., Chen, Y., & Musilek, P. (2019). Performance Analysis of DAG-based Distributed Ledgers. Transactions on Modeling and Performance Evaluation of Computing Systems (Submitted)

**Selected Projects****An Analysis of Travis CI Build Failures****Feb 2019-Apr 2019***University of Alberta**Edmonton, Canada*

- Analyzed TravisTorrent dataset to investigate build failures in Travis CI using **Python** and **R**.
- Found the most important factors that result in CI build failures.
- Used logistic regression to find statistically significant features.

**Implementation of an Othello Player****Feb 2019-Apr 2019***University of Alberta**Edmonton, Canada*

- Worked in a team of two to implement an open source Othello game player program in **Python**.
- Developed a GUI with **PyQt5** for the program.

**Managing Decentralized Energy Production and Consumption****Nov. 2018-Dec. 2018***University of Alberta**Edmonton, Canada*

- Worked in a team of two to design, implement and evaluate a dependable and decentralized billing mechanism for energy retailers using Ethereum smart contracts

**Design and Implementation of a Prototype of an Indoor Smart Parking****Sep 2017-Apr 2018***Amirkabir University of Technology**Tehran, Iran*

- Designed and implemented hardware required to detect the status of a parking spot (empty or full), and send this information to a server.
- Developed **C/C++** code for microcontrollers of the hardware devices.
- Developed a simple web application using **Django** framework in **Python** to visualize the status of all parking spots in the parking lot's map.

**Face Recognition Using CNN in MATLAB****Nov 2016-Jan 2017***Amirkabir University of Technology**Tehran, Iran*

- Used transfer learning in **MATLAB** for face recognition.
- The program was trained to recognize five specific people.

**Face Detection using CNN in MATLAB****Jan. 2017***Amirkabir University of Technology**Tehran, Iran*

- Worked with three other student on this project
- Used transfer learning in MATLAB for live face detection

**Handwritten Digit and Alphabet Recognition With Image Processing in Python** Mar 2016-Jun 2016*Amirkabir University of Technology**Tehran, Iran*

- Worked in a team of two to develop a program that detects and tracks hand in the webcam video and recognizes the digit or alphabet written by hand.
- Used **OpenCV** and **Python** to train a model to detect and track hand.
- Used **PyQt** to develop a GUI for the program.

**Localization by Fusing ARUCO Library and Encoder Data on a UGV Robot** Aug 2015-Oct 2015*Amirkabir University of Technology**Tehran, Iran*

- Worked in a team of two on using image processing and encoder data for robot localization in a room.
- Used **C++** and **OpenCV** for QRCode detection to find the robot's location and pose.

## Awards and Honors

**University Entrance Exam Exemption****Sep 2013***Amirkabir University of Technology**Tehran, Iran*

- Admitted to BSc program without participating in university entrance exam due to international achievements in robotics competitions.

**Best Robot Performance and 3<sup>rd</sup> Place Award for Junior Soccer Robot****Jul 2011***Junior Soccer League at Robocup International Competition**Istanbul, Turkey*

- Worked in a team of 4 to develop junior soccer robots which received two major awards in Robocup international competitions.

## Volunteer Work

**Event Planner and Organizer****Aug 2015-Nov 2015***AmirKabir University of Technology**Tehran, Iran*

- A member of Organization Committee of AUTRONICS Circuit Design and Implementation National Competition

**Event Planner and Organizer****Nov 2015***AmirKabir University of Technology**Tehran, Iran*

- Planned and organized the 11th IEEE Iran Section Student Branch Symposium

**A Member of Technical Committee of a Robotics Competition****Sep. 2015***Sharif University of Technology**Tehran, Iran*

- A member of Technical Committee of 3rd Sharif Open Robotics Competition

**A Member of Executive Committee of a Robotics Competition****Aug. 2015***Sharif University of Technology**Tehran, Iran*

- A member of Executive Committee of 1st SharifCup Competitions' Workshops

**A Member of Executive Committee of a Robotics Competition****May 2015***AmirKabir University of Technology**Tehran, Iran*

- A member of Executive Committee of Aerospace National Student Competitions

**Referee at a Robotics Competition****May 2015***Farzanegan 1 Highschool**Tehran, Iran*

- Referee at 3rd and 4th FarzCup Junior Robotics Competitions