Sara Ghaemi

North York, ON, M2R 2S7

📞 (+1) 416-459-5547 • ✉ ghaemi.sr@gmail.com • 🌐 sara-dev.com • ⚡ ghaemisr
🔗 sara-ghaemi

Highlights of Skills

- 2 years of experience researching software systems earned through an MSc program in software engineering.
- 1 year of experience implementing software programs based on the microservice architecture using Docker containers on cloud computing platforms.
- Strong teamwork and interpersonal skills developed during 6 years in research assistantship roles working with teams of size 10, 1+ years in teaching roles, and 1+ years in a leadership role leading a team of 5.

Technical Skills

Programming Languages: Python, Node.js, C/C++, Java, MATLAB
Tools: Linux, Git, Docker, Travis CI, Hyperledger Fabric

Education

MSc in Software Engineering and Intelligent Systems   **Sep 2018–Expected Dec 2020**
University of Alberta, Edmonton, Canada
- Selected Coursework: Software Quality, Engineering Dependable Systems, Cyberphysical Systems, Machine Learning
- GPA: 3.9/4

BSc in Electrical Engineering, Electronics   **Sep 2013–Apr 2018**
Amirkabir University of Technology, Tehran, Iran
- Selected Coursework: Multimedia Systems, Advanced Programming, Probability and Statistics, Computer Architecture and Microprocessors, Introduction to Computational Intelligence
- GPA: 3.5/4

Experience

Research Assistant and Teaching Assistant   **Aug 2019-Present**
York University, Toronto, Canada
- Investigating and researching the use of **blockchain** technology in **serverless** computing.
- Designed, implemented, and evaluated ChainFaaS, an open blockchain-based serverless platform.
- Utilized **Docker** containers to develop ChainFaaS based on a microservices architecture.
- Used **Node.js** to implement a **Hyperledger Fabric** network on cloud computing instances.
- Leveraged **Django** web framework to implement a simple web application for the platform in **Python**.
- As a teaching assistant, supervised about 40 students to write different programming tasks in **Java**.

Blockchain Intern   **Jun 2020-Nov 2020**
The Linux Foundation, Toronto, Canada
- Selected as one of the 18 people to work on Hyperledger mentorship projects in 2020.
- Developing an interoperability solution based on the publish/subscribe architecture for permissioned **blockchains**.
- Contributing to open-source projects in the Hyperledger community.

Coding Instructor   **Dec 2019-May 2020**
Alpha Coding Inc., Toronto, Canada
- Taught **Python** and **Robotics** to students of age 7 to 20 and created curriculum for beginner to advanced classes.

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Research Assistant and Teaching Assistant   **Sep 2018-Aug 2019**
University of Alberta, Edmonton, Canada
- Analyzed the performance of DAG-based distributed ledger technologies (**DAG-based DLT**), especially **IOTA**.
- Conducted a series of simulations to create a private **IOTA** network and find its most important performance metrics.
- As a teaching assistant, supervised about 60 students to program an NXP ColdFire microprocessor using assembly.

Research Assistant and Teaching Assistant   **May 2014-Feb 2018**
Amirkabir University of Technology, 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.
- As a teaching assistant, taught **Python** programming language to about 25 undergraduate students.

Volunteer Work

Chair of IEEE Student Branch (IEEE SB)   **May 2015-Jul 2016**
AmirKabir University of Technology, Tehran, Iran
- Led a team of 5 to plan and execute about 18 events, workshops, and student competitions.
- IEEE Amirkabir University SB received the "Student Branch Excellence Award" from IEEE Iran Section in May 2016.

Publications

S. Ghaemi, H. Khazaei and P. Musilek, "ChainFaaS: An Open Blockchain-Based Serverless Platform," in IEEE Access, vol. 8, pp. 131760-131778, 2020, doi: 10.1109/ACCESS.2020.3010119.

C. Fan, S. Ghaemi, H. Khazaei and P. Musilek, "Performance Evaluation of Blockchain Systems: A Systematic Survey," in IEEE Access, vol. 8, pp. 126927-126950, 2020, doi: 10.1109/ACCESS.2020.3006078.

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 (Under Major Revision)

Selected Projects

An Analysis of Travis CI Build Failures   **Feb 2019-Apr 2019**
University of Alberta, Edmonton, Canada
- Analyzed the TravisTorrent dataset to investigate build failures in Travis CI using **Python** and **R**.
- Found the most important factors that result in continuous integration build failures.

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.

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, and inform 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.

Face Detection and Recognition using CNN in MATLAB   **Nov 2016 - Jan 2017**
Amirkabir University of Technology, Tehran, Iran
- Worked in a team of four to use transfer learning in **MATLAB** for face detection and recognition.
- The program was trained to recognize five specific people.

Handwritten Digit and Alphabet Recognition With Image Processing in Python   **Mar 2016-Jun 2016**
Amirkabir University of Technology, Tehran, Iran
- Developed a program to detect and track hand in webcams's video and recognize digits or alphabets written by hand.
- Used **OpenCV** and **Python** to train a model to detect and track hand and **PyQt** to develop a GUI for the program.