Amir Makhshari

KAIS 4020, 2332 Main Mall, Vancouver, BC, V6T 1Z4

☏ (+1) 604-727-0763 | ✉ amirosein@ece.ubc.ca | ⌂ https://makhshari.github.io/ | ⬡ makhshari | ⬛ makhshari | ⬛ @makhshari

Education

The University of British Columbia (UBC)   *Vancouver, Canada*

MASc. in Computer Engineering   *Sep 2019 - Present*

- GPA: **4.15/4**
- Thesis: *IoT Bugs and Development Challenges* - Published at   **ICSE'21: Top Conference in Software Engineering**

Amirkabir University of Technology, Tehran Polytechnic (AUT)   *Tehran, Iran*

B.S. in Computer Engineering   *Aug 2014 - Mar. 2019*

- GPA (last two years): **3.97/4**
- Thesis: *A Testing Framework for Load and Stress Testing of IoT systems*.

Work Experience

Software Analysis and Testing Lab @UBC   *Vancouver, Canada*

Software Engineering Researcher   *Sep 2019- Present*

- Proposed a bug taxonomy for IoT with **Root Cause Analysis of IoT Bugs** and a systematic characterization of IoT development challenges.
- Developed an **Automated Test Case Generation** approach for IoT systems using **Java** with a focus on **AWS IoT**, and **SmartThings** IoT platform.
- Proposed an automatic ML-based bug detection technique using **Graph Neural Networks** which improved our baseline accuracy by 30%.

Computer Science Department @UBC   *Vancouver, Canada*

Teaching Assistant   *Sep 2020- Present*

- *Software Engineering Industry Skills (CPSC 455)*: Mentoring students during interactive workshops and labs regarding front-end and **back-end** web development and **NoSQL** databases.
- *Advanced Software Engineering (CPSC410)*: Responsible for directing five student groups towards developing static and dynamic **source code analysis** tools, applying **design patterns**, and developing self-defined DSLs all in **Java**.
- *Software Engineering Projects(CPSC319)*: Worked directly with **Stakeholders from HSBC bank** and two large student groups to deliver an email campaign service following a Waterfall SDLC methodology and using **AWS** services such as Amplify, DynamoDB, SES, and S3.

IoT Lab at AUT   *Tehran, Iran*

Software Engineer   *Jul 2018- Aug. 2019*

- Responsible for **testing and code maintenance** of an IoT platform back-end services written with **PHP Laravel**.
- Solved known bugs in the permission system, improved the event logging and error management of the IoT platform.
- As a PHP **back-end developer**, worked closely with the clients and the IoT core team and debugged other developers' code.

Electronic Research & Production Co. TAKTA   *Tehran, Iran*

Software Engineer   *Sep 2017- Jun. 2018*

- Designed and implemented a **JavaScript IoT hub server** for an IoT-based monitoring system for remote TV transmitters.
- Responsible for **testing** the product with real on-site TV transmitter devices and worked closely with the hardware engineering team.

Alton Tech. Co.   *Tehran, Iran*

Software Engineer Intern   *May 2017- Sep. 2017*

- Built an **iOS application** to control, monitor, and schedule smart light bulb devices in our office remotely using **Swift**.
- Worked closely with the project supervisor and the back-end team to **design APIs** that allow other developers to query the IoT lamps.

Side Projects

DroidCov   *BASH, Java*

Android Testing Tool | Group project   *2020*

- A **test automation tool** that automatically measures instruction and method coverage for Android apps with **Sapienz**, **Monkey**, and **APE**.

StressThing   *JavaScript*

WoT Testing Tool | Thesis project   *2019*

- A **web-based testing tool** that uses Apache **JMeter** and **BlazeMeter** to perform **Stress Testing** on smart IoT devices.

Skills

Programming	**Expert:** Java **Proficient:** JavaScript • C • PHP **Familiar:** Python • BASH • R • Swift
Technologies	Git and CI/CD • AWS • Object-Oriented Design • RESTful APIs • Design Pattern • Functional Programming • Algorithms and Data Structures • SQL/NoSQL • Testing Tools for web (JMeter, Selenium) and mobile (Monkey, Sapienz, Ape)

Honors & Awards

2021	**Vice-President of Social Relations,** Elected by ECE students as a member of Graduate Student Society	*Vancouver, BC*
2019	**UBC Graduate Fellowship**, Granted by ECE department at UBC and funded by Intel co.	*Vancouver, BC*
2014,2018	**Ranked top 1%,** National-wide University Entrance Exam for M.Sc. (CE, IT) and B.Sc. (Eng., Foreign lang.)	*Iran*