HAMZA BAIG

linkedin.com/in/mhabaig | mhabaig@uwaterloo.ca | github.com/HBaig30 | (647) 719-1436
Electrical Engineering | University of Waterloo | Candidate for 2022 BASc.

Languages

- C++
- C
- Python
- Assembly
- PowerShell
- SQL
- Power Query
- LaTeX, Markdown
- Bash

Tools

- CLion, Visual Studio
- Real-Time OS
- Linux
- Git
- AWS Lambda, S3 & EC2
- Azure Automation, Cosmos DB & Log Analytics
- Automation Scripting
- Virtual Environments
- Power BI

Experience

Virtual Research Domain Student, Communications and Research Centre Canada (ISED)
Ottawa, Ontario — Sept 2018 – Dec 2018

- Used **AWS** and **Azure** to develop and automate a program that determined idle virtual machines from active ones alongside giving users their CPU usage - all in real time
- Designed and implemented the program in **Python** and **PowerShell**, with data being stored in Azure's virtual database along with Amazon **S3** buckets and curated using **Microsoft's Transact-SQL**
- Front-end was designed in **Power BI** and made available to all researchers through a web interface
- Provided thorough documentation pertaining software design decisions and a troubleshooting guide using **Markdown** to efficiently debug issues related to the process of data collection and filtering of virtual machines

Test Engineering Student, Wind River Systems
Ottawa, Ontario — Jan 2018 – Apr 2018

- Developed and implemented an auditing tool in **Python** which parsed through over 600 JSON files and organized data into CSV format
- Resolved various bugs by debugging source code through disassembly files of various architectures such as **PowerPC** and **ARM**
- Performed coverage-gap analysis on branch gaps existing in both source and disassembly files

Projects

Robotic Arm

- Built and programmed a two-pronged robotic arm controlled by gyroscopic sensors with the use of an **Arduino** and **C language** to establish a platform for the interactions between the hardware and software
- Developed a working knowledge of datasheets to make effective use of integrated circuits used in the project

Hardware Ad-Blocker

- Improved overall network performance by 40% and reduced data usage by 22% through configuring a router's DHCP options to block advertisements on any device
- Became familiarized with various protocols devices use to communicate over networks such as DHCP, TCP/IP, and WLAN

Magic Square

- Utilized core concepts of number theory to develop a program in **C++** to create any n-by-n grid where each row, column and diagonal add up to the same number

Online Coursework

Introduction To Machine Learning, Udacity — In Progress

- Learning the end-to-end process of investigating data through machine learning, using **sklearn Python** modules
- Notes were written in Markdown, made available through **GitHub**