

# HAMZA BAIG

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Electrical Engineering | University of Waterloo | Candidate for 2022 BSc.  
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## Languages

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

## Tools

- CLion, Visual Studio
- Real-Time OS
- Linux
- Git
- Amazon Web Services
- Microsoft Azure
- 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 real-time CPU usage
- 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**
- Designed the front-end in **Power BI** which served the 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

### Hamzals.Me

- Developed and hosted a personal website using Amazon Web Services as backend and NameCheap as it's domain provider
- Utilized both HTML/CSS along with Javascript to provide users comfortable and user-friendly experience

### 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**