

SHAZIAH GAFUR

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SKILLS

Languages: C++, C, Python, JavaScript, Java, HTML, CSS, SQL, Bash

Frameworks: Django, Node, React, Express.js, Mocha.js, Spring Framework, Swing

Databases: MongoDB, PostgreSQL, SQLite, Microsoft Access

Machine Learning: pandas, PyTorch, NumPy, OpenCV, Matplotlib, Neural Networks

Hardware: Assembly, Verilog, Model Sim, FPGA programming

Other: REST APIs, Git, Unix & Linux, GNU Debugger, Postman, Shell Scripting, MS Office

EDUCATION

University of Toronto St. George

2018 – 2023 (expected)

Computer Engineering | Bachelor of Applied Science

Relevant Coursework: Algorithms & Data Structures, Software Design & Communication, Operating Systems, Machine Learning Fundamentals

WORK EXPERIENCE

Software Engineer Intern, RTG Diagnostics Graphics Firmware | AMD

Markham, Ontario | May 2021 – April 2022

- Programmed software fixes in **C++** and completed code building and bash scripting for C-Model firmware on **Linux** system
- Supported GFX (Graphics) Compute by implementing convolution in **C++** on Convolutional Neural Network for performing deep learning applications on AMD's MI300 APU chip
- Executed root cause analysis and debugging of GFX OFF firmware and graphics workload, reducing test execution time threefold
- Conducted diagnostic test execution and debugging in **Linux** environment for various programmes on several AMD GPUs
- Created **Python** script to automate creation of test lists for feature verification on GPUs, shrinking preparation time five-fold
- Supported Most Stressful Application responsibilities by diagnosing functional and performance issues on AMD GPUs and Application-specific integrated circuits (ASICs) by tracking GPU usage and using various benchmarking tools

Software Developer Intern, Windows Graphics Driver Tools | AMD

Markham, Ontario | May 2022 – Aug 2022 (expected)

- Reduced time developers spent fixing KMD (Kernel Mode Driver) errors by supporting KMD CI Automation Team in improving the quality of regression testing
- Assisted team with performing on-submit & pre-submit developer builds and communicating issues to outside members by creating web application in **Python** to track all test-related info: features, test plans & cases, known issues, test systems, test machines, build time metrics, and test executions
- Worked independently to build **entire application from scratch**, including database models, CRUD (Create, Read, Update, Delete) functions, user interface, responsive web design, and back-end services, all to replace unreliable, rudimentary historic website
- Performed full-stack development with **Django (Python)** in Scrum fashion, employing **Model View Template** web architecture

Web Developer Intern | Bell Canada

Mississauga, Ontario | May 2020 – Aug 2020

- Reconstructed obsolete website for Operations Technical & Systems Support using **Java's Spring Framework** and **Spring MVC architecture**. Mentored the original creator who formerly built the site with Classical ASP and static HTML and CSS
- Engineered new web components including employee login & authentication to enhance security of 1000+ employee users
- Crafted search engine and implementation for Corporate Asset Library with **Solr**, increasing relevancy of results by 60%
- Designed new data mapping for increasing efficiency of flows of IT Configuration Items among 10+ data sources

Software Engineer Intern | Royaltymine

Toronto, Ontario | June 2019 – Aug 2019

- Developed cloud-based application from scratch with team of 10 interns using **NodeJS, MongoDB, & React** to sustain online marketplace for music creators and investors to share music and collect royalties; currently used by over 300 members
- Defined architecture and data models, managed tracking of revenue and user analytics, implemented back-end features from scratch, and established flow of payment splitting among shareholders; reported royalty earnings with 100% accuracy
- Created **REST APIs** with **NodeJS, React, and Express** for performing CRUD operations and facilitating database transactions
- Performed automated and manual testing with **Postman** and **MochaJS** to enhance back-end features and API endpoints

PROJECTS

Masks Unmasked [↗](#)

Sept 2020 – Dec 2020

- Developed **Python** computer vision application to detect public social distancing and mask use to limit spread of COVID-19
- Managed machine learning data processing and built a Support Vector Machine (SVM) Baseline model
- Created Convolution Neural Network architecture and used Transfer Learning with **pandas**, **Matplotlib**, **PyTorch** and **NumPy**

All Nightr – A GIS Map application helping students navigate at night [↗](#)

Jan 2020 – April 2020

- Developed an application for students to locate study spots and places for food outside of class hours, as part of course Software Design & Communication in **C++** with Object Oriented Programming using the **Open Source** code of OpenStreetMap, built on Linux operating system
- Implemented path finding algorithms & enacted debugging to determine directions, shortest routes and constrained paths
- Created tactics to predict user's search requests with suggestive text, reducing chance of user error by 50%
- Enhanced performance by 60% and memory usage by 30%; optimized map visualization using the **Open Source** GTK toolkit

Nim [↗](#)

March – April 2020

- Implemented the traditional 2-player game of Nim on Altera **FGPA (DE1-SoC)** board, designed for ARMv7 processor architecture; programmed in **C**, uses polling from keyboard and switches as user input, and displays interactive VGA graphics
- Completed advanced game features, including game reset, game rounds and scoring, and adjustable game difficulty

Augmented Workouts [↗](#)

Winning Project at JAMHacks 2017 hackathon

- Designed fitness gaming console to make wearisome exercise more enjoyable by immersing the user in a responsive 3D virtual environment using the **Xadow Intel Edison** development board; participants reported 70% more willing to exercise
- Generated a pedometer and calorie counter using **C++** and **Arduino** to interpret gestures as exercise movements
- Achieved strong foundation of hardware components by debugging conflicts and connecting different types of interfaces

Process Improvement for reBOOT Canada [↗](#)

Oct 2018 – July 2019

- Resolved complications of data integrity and tracking by creating the first cloud-based **relational** management system in **Python** for controlling flow of hardware donations; enabled task automation to shrink data input time by 3 times
- Integrated **PostgreSQL** database and **Django** to perform analytics, user authentication and facilitate database transactions

The Space Race [↗](#)

Feb 2018 – June 2018

- Developed computer game in **Java** to educate children on astronomy and space travel, as part of school final project
- Fully implemented traditional board games, such as Snakes & Ladders, Mastermind & Minesweeper using **Swing** & **Applets**
- Built all game elements, including storyline, game logic, GUI, visuals & characters and completed all stages of game testing

Piano Chord Detection Using Fourier Analysis [↗](#)

Nov 2017 – Feb 2018

- Self-directed research project to identify music notes of piano chords in a sample of music; topped **1st out of 120+** projects
- Self-taught university-level mathematics and digital signal processing as a high school student
- Developed program with **Java** and **MATLAB** to simplify complex calculations of the Fourier Transform and implement sorting algorithms, assess frequency distribution, and identify specific musical keys

LEADERSHIP ACTIVITIES

University of Toronto Hyperloop Team – Software Design Team Member

Oct 2019 – April 2020

- Built relaying of internal and external communication signals in **object-oriented C++** from various sensors to control systems
- Established reliable connections to control panel, doubled data transmission rates, and performed health monitoring practices of data input for initiating emergency protocols, collaborating through agile practices and **Git** for version control

Vice President of Industry Relations at University of Toronto Machine Intelligence Student Team [↗](#)

June 2020 – July 2021

- Directed team of students to arrange several academic and professional development events related to AI & Machine Learning
- Secured sponsorship and event-based partnerships with numerous companies and UofT student organizations
- Continuously provided career-related resources and opportunities, serving as the main contact for directing career advice
- Maintained a compilation of career resources for students and composed sections for [bi-weekly newsletter](#)