SHAZIAH GAFUR

(647) 389-7174 | ShaziahGafur | https://shaziahgafur.github.io | Shaziah-Gafur | shaziah.gafur@mail.utoronto.ca

SELECTED SKILLS

Languages: C, C++, Python, JavaScript (Node, React, Mocha), Java, HTML, CSS
Hardware: Assembly, Verilog, Model Sim, FPGA programming
Data Science: pandas, OpenCV, Matplotlib, PyTorch, NumPy, SQL
Tools: Git, MATLAB, Postman, MongoDB, PostgreSQL, MS Office

EDUCATION

University of Toronto St. George
2018 – 2023 (expected)

Computer Engineering | Bachelor of Applied Science
Relevant Coursework: Software Design & Communication, Algorithms & Data Structures, Operating Systems, Machine Learning Fundamentals

WORK EXPERIENCE

Graphics RTG Diagnostics Engineering Intern | Advanced Micro Devices (AMD)
Markham, Ontario | May 2021 – April 2022

- Performed root cause analysis and debugging of GFX OFF firmware and graphics workload, reducing test execution time threefold
- Completed software building, merging, and bash scripting for C-Model circuitry firmware and kept code versions up to date
- 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
- Conducted diagnostic test execution and verification for various programmes on multiple ASICs
- Created a script to automate creation of test lists for feature verification on AMD ASICs, shrinking preparation time five-fold

Software Engineering 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** through React and NodeJS 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

Information Technology Business Analyst | 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

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

Lead Workshop Coordinator for Major League Hacking at TurnerHacks in June 2018
Nov 2017 – June 2018

- Initiated the first hackathon at local high school to inspire youth to get involved in technological innovation
- Developed interactive workshops in Web and Android App Development and served as lead presenter
- Provided mentorship and technical assistance to design teams; directed volunteers to engage and assist in workshops
- Event planning and scheduling for large, full-day conference of 50+ guests

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

FPGA Mastermind
Nov 2019 – Dec 2019

- Recreated the traditional strategy game of Mastermind on an **FGPA (DE1-SoC)** board, using keyboard and switches for input
- Developed random sequence generator, game controls and Finite State Machines (FSM) in **Verilog,** displaying VGA graphics
- Ensured game was fully functional by analyzing simulations of control paths and data paths with **Model Sim**

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

Project Manager for Engineering Strategies and Practice Course
Jan 2019 — Apr 2019

- Created official project Gantt Chart through Microsoft Project and ensured tasks were completed on schedule
- Contingency planning, developing project milestones, and writing weekly status reports of project updates
- Frequent communication with team, engineering manager, and client to ensure each party is informed on new decisions

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

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

BTOC Solutions
Oct 2016 – March 2017

- Solved issues of data loss and inefficient storage by implementing the first-ever database management system from scratch using **SQL, Microsoft Access** & **Excel**; structuring client information for 100+ television service subscribers
- Reduced time for data retrieval by 3 times; produced data clarity by creating meaningful insights from 15+ SQL queries
- Decreased chance of input error by 5 times by improving input validation with input masks, macros and by building 10 forms