

DIVYA THAKKAR

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TECHNICAL SKILLS

Programming: Python, C, C++, Kotlin, Java, JavaScript, SQL, HTML5, CSS3, MATLAB

Tools and Technologies: AWS, Git, Perforce, Linux/UNIX

WORK EXPERIENCE

Amazon – Software Development Engineer Intern, Toronto, ON

May 2022 – Aug 2022

- Designed and built a **Kotlin** service to automate the detection and ticketing of messages causing invalid states
- Leveraged **AWS CDK** in **Java** to efficiently store non-processable message metadata in an **AWS S3** bucket
- Used an **AWS Glue** crawler to automatically crawl S3 bucket data, to create a database where **AWS Athena** was used to create queries and examine issues, which cut on-call invalid state correction time by 30%

Synopsys – Technical Engineer Intern, Remote

May 2021 – Apr 2022

- Performed FPGA simulations, synthesis, and digital verification for a multi-protocol high-speed SerDes PHY
- Increased efficiency of report analysis by automating reporting tools for FPGA validation tests with **MATLAB** scripts that compiled relevant information in one file from **50k+** data points
- Implemented a dual-lane RTL design using **Verilog** where two separate channels could transmit and receive data across one link between the FPGA and PCS interface, compared to the previous one channel limit

EDUCATION

B. Eng. Computer Engineering (Co-op), McMaster University

Sep 2018 – Apr 2023

- **Relevant Coursework:** Data Structures and Algorithms, Object Oriented Programming, Complexity Analysis, Operating Systems, Statistics & Data Analysis, Digital Systems
- **Awards:** 1st place at McMaster Engineering Competition (MEC), qualified for the Ontario level competition

PROJECTS

Covid-19 Tracking Application (McMaster Engineering Competition Winning Submission)

- Used **Python** & **Flask** to process input statistics and identify trends with **efficient sorting algorithms**
- Leveraged **GeoJSON API** to visually display a Heat-Map of the concentration of cases
- Designed a website using **HTML** & **CSS** to present countries' sorted data on infection, mortality and recovery

Real Time Software Defined Radio

- Processed FM mono/stereo audio in real time using a radio frequency dongle and a **Raspberry Pi 4** board
- Reduced program runtime by 40% using **queues** and **multithreading** in **C++** to utilize all RPi's cores
- Processed **2.5M samples/sec** by performing block processing using **Python's NumPy** and **SciPy** libraries
- Implemented filtering, impulse responses, demodulation, etc., to process the RF signal in the digital domain

Portable LiDar Spatial Measurement System

- Programmed an ARM-based **Microcontroller** in **C** to construct a 3D visualization of the user's surroundings
- Mounted a **time-of-flight** sensor atop a **stepper motor** to take 360° measurements across each XYZ plane
- Processed **11k+** data points efficiently using **NumPy** and rendered the 3D map with **Python's Open3D** library