SHARIQ HAFEEZ

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Education

University Of Michigan – Ann Arbor: Computer Engineering 05/2020

GPA: 3.92 / 4.0

Current Courses: Hardware Accelerators, Machine Learning

Completed Courses: Operating Systems, Data Structures & Algorithms, Intro Logic Design
Intro Signals & Systems, Microprocessor Toys, Linear Algebra

Skills: C++, C, Verilog, Python, Assembly (x86 & ARM), Matlab

Experience

Citadel Securities | **C++, Python** 06/2019 to 08/2019
Software Engineering Intern – Chicago, IL

- Sped up C++ library for python by 10-50x in common use cases for users iterating historic data.
- Designed server/client to coordinate a data generation pipeline with cloud integration.

Marvell Semiconductor | **C, Bash, Assembly** 05/2018 to 08/2018
System Firmware Intern – Marlborough, MA

- Enabled an enterprise SSD controller to boot over Quad-SPI, doubling memory transfer speed.
- Adapted encryption API to run on dedicated cryptography hardware for new board release.

University Of Michigan | **C, Bash, Profiling** 01/2019 to 04/2019
Research Assistant – Ann Arbor, MI

- Contributed to project that monitors cache misses caused by data locality issues.
- Identified suitable database benchmarks and manually optimized prefetching and struct layout.

Personal Projects (All detailed at sshafeez.github.io)

Parallel Loop Detector | **Python, Clang, OpenMP, Intel Pin** 10/2018 to 03/2019

- Combined static and dynamic analyses to identify thread-safe loops in C/C++ code.
- Analyzed syntax trees generated by Clang compiler for static analysis.
- Monitored program execution and memory accesses using Intel Pin tool.

Selective Data Compression Algorithm| **C++, Python** 04/2019 to 04/2019

- Developed compressed matrix model for fast matrix multiplication in C++ with Python bindings.
- Extensively used linear algebra topics like Least-Squares and projections to minimize distortion.
- Generated sample image matrices that outperform SVD compression in reducing distortion.

Michigan Neuro-Prosthetics – Electronics Lead | **C++** 09/2016 to 11/2018

- Led sub-team of 11 in creating electronics for a 3D printed prosthetic controlled by muscle signals.
- Refactored signal processing algorithm to use machine learning to recognize custom gestures.
- Implemented a sleep mode to increase battery life by 4 hours and reduce battery size.

IOT Home Security Suite | **Python, C++, AWS** 12/2018 to 01/2018

- Developed door access control system that uses facial recognition and RFID tags.
- Designed a camera to automatically detect and photograph personnel from nearby detected movements.
- Implemented projects using a Raspberry Pi and Arduino in conjunction with various IO and peripherals.
- Used Google Vision, AWS for image processing and MQTT and NoSQL for data and message passing.