SHARIQ HAFEEZ

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Education

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

GPA: 3.938 / 4.0   University Honors, Dean's List

Coursework: Data Structures & Algorithms, Intro Computer Architecture, Intro Logic Design, Intro Signals & Systems, Microprocessor Toys, Discrete Math, Intro Circuits

Current Coursework: Operating Systems, Machine Learning (Coursera), Linear Algebra

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

Work History

System Security Firmware Intern | **C, Bash, Assembly**   05/2018 to 08/2018
Marvell Semiconductor – 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.
- Wrote board startup code to initialize cache, setup interrupts, and implement timers. Composed linker script to assemble code, data, stack, and heap for boot code.

Engineering Intern | **C++**   04/2017 to 07/2017
Intent Design – Farmington Hills, Michigan

- Led a team in building a propeller thrust bench to determine feasibility of suspending a 15kg device.
- Interfaced a microcontroller with load cell, speed controller, and current sensor to analyze thrust and power consumption at various RPM.

Personal Projects

CUDAfy: Source to Source Code Parallelizer | **Python, C++, OpenMP**   10/2018 to Present

- Combined static and dynamic analyses to generate efficient, thread-safe code for multi-core CPUs.
- Generated OpenMP directives for synchronization and work distribution of threads and looking to add CUDA and GPU offloading support in the future.
- Used Clang/LLVM for static analysis and detecting race conditions and read/write dependencies.

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

- Led a sub-team of 14 and collaborated with other leaders in creating the electronics for a 3D-printed prosthetic arm actuated by user's muscle activity.
- Refactored signal processing algorithm to use machine learning to recognize custom gestures.
- Currently integrating bluetooth app to supervise real-time training of neural net and patch device settings.

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

- Developed door access control system to verify entries with 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 a microcontroller in conjunction with various IO and peripherals.
- Used Google Vision API, AWS for image processing and MQTT, email, and NoSQL database for message passing and data logging.

Extracurriculars

- Eta Kappa Nu (Honor Society of IEE) – Member
- Middle School Technology Club - Founder