Aashir Farooqi

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Education

University of California, Davis **Fall 2016 - Summer 2020**

Major: Computer Engineering, B.S
GPA: 3.4
CS Coursework: Algorithm Design & Analysis, Applied Linear Algebra, Operating Systems, Networks.
EE Coursework: Embedded Systems, Digital Systems, Circuits, Signal Processing.

Experience

Firmware & Hardware Engineer - Research Assistant **April 2018 - June 2020**
Miller Lab (*millerlab.faculty.ucdavis.edu*) **Auditory Neuroscience & Speech Recognition Lab**

- Independently brought up, prototyped, and delivered C code in a real time embedded environment, as an efficient solution to cross reference external audio inputs with an EEG acquisition system. Leveraged low-overhead data structures and developed linear time algorithms to improve efficiency, alongside emphasizing maintainability by introducing a large amount of code modularity. Brought latency down from the previous iteration by a factor of 10.

- Utilized networking protocols of TCP/IP communication in Linux to interface with an external peripheral to track eye-movement. Implemented for use in behavioral studies.

- Configured, built, and ran a custom RTOS (embedded linux distribution) and cross-toolchain using the Yocto Project, by understanding both the architectural design of the embedded system, alongside the computer architecture of the host system.

- Utilized the version control software of GIT in all software projects, and leveraged software/hardware debugging skills, such as GDB and typical lab bench equipment (oscilloscopes, logic analyzers, function generator).

Software Engineer - Intern **June 2018 - August 2018**
General Atomics **EMS - Software and Controls**

- Leveraged object-oriented and algorithm design principles in an agile software development team environment, to convert the code base for an aircraft landing from MATLAB to C++, bringing the runtime of the simulation down by a factor of 2. Despite tight time constraints and minimal assistance, I earned the "MVP" award for saving "hundreds of hours in simulation time and greatly reducing control system tuning efforts".

Projects

Smart Dog Collar *Relevant Course Project*   *C & Verilog* **Fall 2019 & Winter 2020**

- Wrote C code in a real time embedded environment, with peripheral interfacing using SPI, I^2C, and UART, to track ambient noise, and cycle between different power modes for the SoC and peripherals.

Operating Systems *Relevant Course Project*   *C++* **Spring 2020**

- Wrote C++ code to implement the functionality of a Linux based Operating System, including the development and implementation of preemptive threading, alongside writing a Linux device driver for a FAT16 file system.

Computer Networks *Relevant Course Project/Material*   *C++* **Spring 2020**

- Used networking diagnostic tools such as wireshark to track packets sent/received using typical networking protocols, such as TCP/IP, ARP, DHCP, and QoS.

Mobile Applications (IOS): *Round 'a Bound*, *Tic-Tac Emoji*   *Swift* **Winter 2017 & Spring 2018**

- Successfully delivered the products through their full life cycle, by utilizing different APIs to detect physics collisions, exhibiting independently made animations and sound, and incorporating an online leaderboard via a real time database. While formerly published, the apps culminated in over 250 downloads.

Website: *aashpointo.github.io/KmapWebsite*   *HTML/CSS & JavaScript* **Winter 2018**

- Delivered the web application through its full lifecycle, by implementing the Quine-McCluskey algorithm in JavaScript to compute the *Sum of Products* and *Product of Sums* from a set of truth-table inputs.