

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 developed a real-time embedded solution to cross-reference external audio inputs with an EEG acquisition system by writing embedded firmware code in C and designing/assembling a single-bit ADC circuit. Brought latency down from the previous iteration by a factor of 10. Wrote additional software scripts in Bash and MATLAB to measure both the latency and jitter of the device.
- Configured, built, and ran a custom real time operating system (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).
- Utilized networking protocols of TCP/IP communication in Linux to interface with an external peripheral for eye-tracking. Implemented for use in behavioral studies.

Software Engineer - Intern

June 2018 - August 2018

General Atomics

EMS - Software and Controls

- Leveraged object-oriented and algorithm design principles 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".
- Wrote an extensive number of unit-tests in C++ using a testing framework to ensure the veracity of the simulations.

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, I2C, and UART, to track ambient noise, and cycle between different power modes for the SoC and peripherals.
- Leveraged digital logic and circuit analysis techniques to design custom schematics and PCBs, alongside selecting suitable hardware components to fit onto the circuit boards.

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.

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.

Web Application: aashpointo.github.io/KmapWebsite HTML/CSS & JavaScript

Winter 2018

- Designed a web application to implement the Quine-McCluskey algorithm in JavaScript, which computes the *Sum of Products* and *Product of Sums* from a set of truth-table inputs for use in digital logic circuits.