

# 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](http://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 to interface with an external peripheral to track eye-movement. Implemented for use in behavioral studies.
- Built a custom RTOS and cross-toolchains using the Yocto Project, by understanding both the architectural design of the embedded system, alongside the architectural design of the host system.

Software Engineer - Intern

June 2018 - August 2018

General Atomics

EMS - Software and Controls

- Leveraged algorithm development principles, alongside emphasising maintainability by introduce a large amount of code modularity, 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".
- Utilized a test driven mentality through meticulous unit testing for each problem I broke down for sake of efficiency of my time, and veracity of my simulation.

## 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<sup>2</sup>C, and UART, to track ambient noise, and cycle between different power modes for the SoC and peripherals.

Operating Systems *Relevant Course Project* C++

Fall 2019 & Winter 2020

- Wrote C++ code to implement the functionality of an Operating System, including the development of multithreaded classes, alongside implementing multithreading for preemptive processes. Conducted unit testing using a test driven development mentality to ensure the accuracy of my program. Came alongside writing drivers for a FAT16 filesystem.

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](http://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.

## Technical Skills

- Proficient:** C/C++, MATLAB, Python, Bash, RISC-V.
- Familiar:** Java, Rust, Swift, R, L<sup>A</sup>T<sub>E</sub>X.