

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 solution to cross-reference external audio inputs with an EEG acquisition system by writing C code on a Bare-metal MCU and designing/assembling a single-bit ADC PCB in Eagle. Brought latency down from the previous iteration by a factor of 10.
- Configured, built, and ran a custom RTOS 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 Github for version control, and leveraged software/hardware debugging skills, such as GDB and typical lab bench equipment (oscilloscopes, logic analyzers, function generator).
- Implemented an external eye-tracking peripheral using TCP/IP communication and a Python to MATLAB library, 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 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 on a Bare-metal MCU based low power device, with peripheral interfacing using the serial communication protocols of SPI, I2C, I2S, and UART, to track ambient noise, and cycle between different power modes for the SoC and peripherals.
- Worked alongside Electrical Engineers to bring up a PCB in Altium. Process included the initial schematic design, selection of low power peripherals and MCU, and final assembly of the circuit board.
- Implemented a BLE module for wakeup interrupts and data transfer from a mobile application to our device.

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.

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

Winter 2018

- Implemented the Quine-McCluskey algorithm in JavaScript to compute the *Sum of Products* and *Product of Sums* from a set of truth-table inputs, primarily for use in digital logic design.