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, Operating Systems, Networks.
EE Coursework: Embedded Systems, Digital Systems, Circuits, Signal Processing.

Experience

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

- Developed a real-time solution to cross-reference external audio inputs with an EEG acquisition system by writing embedded firmware code in C, implementing low-overhead data structures, and designing/assembling a single-bit ADC circuit. Brought latency down from the previous iteration by a factor of 10.

- Peformed statistical methods in MATLAB on EEG data, using Principal Component Analysis for clustering and dimension reduction, all as a means for data analysis.

- Utilized software debugging tools such as GDB, alongside hardware debugging tools such as multimeters, oscilloscopes, logic probes, and function generators.

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

- Brought the runtime of the aircraft landing simulation down by a factor of 2 by converting portions of the codebase from MATLAB to C++, and leveraging algorithm design techniques. 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".

- Validated my simulations by utilizing the Catch testing framework and incorporating a Test-Driven Development methodology.

Projects

Senior Design Project: *Smart Dog Collar*   *C & Verilog*   **Fall 2019 & Winter 2020**

- Wrote embedded firmware and HDL code onto Cypress's PSoC, by utilizing digital design and circuit analysis techniques.

- Implemented a BLE module for wakeup interrupts and data transfer from a mobile application to our device.

- Communicated with external peripherals such as MEMS mics, accelerometers, and gyrometers through I^2C, I^2S, SPI, and UART.

- Implemented discrete signal processing in C to compute the RMS value of noise in the room.

IOS Games: *Round 'a Bound*, *Tic-Tac Emoji*   *Swift*   **Winter 2017 & Spring 2018**

- Implemented a realtime database through Google's Firebase API, for use with an online leaderboard.

- Utilized the Spritekit API to detect physics collisions between nodes and to exhibit independently made animations and sounds.

- Apps originally published and reviewed on the App Store, culminating in over 250 downloads.

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

- Designed an 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++, Verilog, MATLAB, Bash, RISC-V.

- **Familiar:** Python, Java, Rust, Swift, R, LaTeX.