

Hershel P. Shah

ELECTRICAL ENGINEER · SOFTWARE ENGINEER

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Experience

Prellis Biologics

SYSTEMS PROGRAMMER

3944 Trust Way, Hayward

January 2019 - Current

- Redesigned and implemented software architecture based on micro-services for a multi-photon 3D printer software stack in Python. The software was redesigned such that it is no longer the limiting factor in the system.
- Redesigned and implemented computational holography pipeline using OpenCV, CUDA, and C++ to create holograms for the multi-photon 3D printer. The optimizations in software and signal processing has sped up the process by 25%.
- Used OpenCV in C++ to process images with morphological operators, k-means clustering, as well as generate and apply masks for software based optical correction.
- Implemented, bench-marked, and optimized a phase retrieval algorithm on images in CUDA to generate holograms.

Tesla

ELECTRONIC SYSTEMS INTERN

3500 Deer Creek Road, Palo Alto

June 2018 - September 2018

- Analyzed factory data and made process recommendations to increase Radio Tuner FPY to 99%.
- Created BASH tools to reduce required number of engineers on field tests by 50%.
- Debugged and maintained radio firmware using C++ for all car models.
- Designed and implemented radio test suite decreasing testing time and automating test process.
- Created scalable service to run remote commands on several engineering cars simultaneously.
- Designed and implemented service which would test engineering cars for issues in updating issues for future OTA radio firmware updates.
- Assisting with thermal analysis of radio tuner placement for future design considerations.

Tesla

WIRELESS HARDWARE INTERN

3500 Deer Creek Road, Palo Alto

June 2017 - September 2017

- Analyzed FM HD Radio Quality before official Model 3 release.
- Determined feasibility of In-Car wireless harness using Python and BASH.
- Analyzed link between antenna placement and QoS in cars using Python and BASH.
- Created RF test suite (Bluetooth, 802.11b/g/n, WCDMA, GSM, and LTE) using Python.

Dolby Laboratories

WIRELESS ENGINEERING INTERN

1275 Market Street, San

Francisco

June 2016 - September 2016

- Tested and wrote automated tests for characterizing the Bluetooth performance and capabilities of Dolby Dimensions.
- Determined optimal wireless network parameters and configuration—MIMO vs SISO, Antenna polarization, UDP vs TCP, MAC layer re-transmission parameters—for an advanced R&D project.

Applied Micro/Nano Electromagnetics Research Laboratory

UNDERGRADUATE RESEARCHER

545 Bainer Hall Drive, Davis

January 2017 - February 2018

- Performed simulations and tests in HFSS using Floquet's Theorem to determine a proper simulation and test procedure for measuring the S11 magnitude and phase of an infinite meta-surface using various unit cells in the Giga/Tera hertz range for satellite communications.

Skills

Hardware Verilog, ANSYS HFSS, ESP32, ESP8266, TI MSP430, TI TIVA C, CAD, Logic Analyzer, Network Analyzer, Spectrum Analyzer

Software Python, C/C++, Java, Bash, Gensim, Lua, Git, *nix Based OS, Tensorflow, CUDA, LabView, SCPI Commands, Golang, Docker, Tcl

Education

University of California, Davis

1 Shields Ave, Davis, California

95616

B.S. IN ELECTRICAL ENGINEERING

September 2015 - December 2018

- Relevant Coursework: Electromagnetics, Linear Circuits Analysis, Device Physics, Digital System Design, Nonlinear Circuit Analysis, Signal & Systems, RF and Microwave Engineering, Antenna Design and Analysis, Computer Architecture, Parallel Programming in CUDA, Probabilistic Analysis of Electrical and Computer Systems, and Signal & Systems II