Hershel Shah

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Location: Sunnyvale, California

Experience

- **Systems Programmer & Engineer** — Prellis Biologics
  Skills: Holography, Parallel Programming, Computer Vision, C++, Python — *January 2019 - Present*
  - Redesigned and implemented 3D holographic printer stack in Python and wrote low-level libraries for interacting with hardware such as stages, liquid lens, spatial light modulator, and a laser for production.
  - Designed custom algorithm to voxelize and slice large (over million triangles) STL files resulting in a 300% speedup using Ray-Triangle intersection.
  - Used OpenCV in C++ to process images with morphological operators, k-means clustering, as well as generate and apply masks for optics.
  - Implemented, benchmarked, and optimized a phase retrieval algorithm on images in CUDA to generate holograms.
  - Redesigned and implemented hologram generation pipeline resulting in 25% speedup and real-time hologram output for production usage.
- **Electronic Systems Intern** — Tesla
  Skills: C++, Python, BASH, Tcl-Tk, Docker — *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 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.
- **Wireless Engineering Intern** — Tesla
  Skills: Python, BASH, Network Analyzer, Spectrum Analyzer, iperf — *June 2017 - September 2017*
  - Analyzed FM HD Radio Quality before official Model 3 release.
  - Determined feasibility of In-Car wireless harness using Python/BASH.
  - Analyzed link between antenna placement and QoS in cars using Python/BASH.
  - Created RF test suite (Bluetooth, 802.11b/g/n, WCDMA, GSM, and LTE) using Python.
- **Wireless Engineering Intern** — Dolby Laboratories
  Skills: Python, BASH, Network Analyzer, Spectrum Analyzer, iperf — *June 2016 - September 2016*
  - Tested and wrote automated tests for characterizing the Bluetooth performance and capabilities of Dolby Dimensions.
  - Determined network parameters and configuration for an R&D project.

Projects

- **Image Stitching in CUDA**
  Skills: OpenCV, CUDA, C++ — *March 2018*
  - Implemented Scale Invariant Feature Transformation (SIFT) and Random Sample Consensus Algorithm (RANSAC) in CUDA on the Nvidia Jetson TX2 in less than a week to image stitch multiple images together.

Education

- **University of California, Davis** — Davis, CA
  Bachelor's of Science, Electrical Engineering — *September 2015 - December 2018*
  - **Relevant Courses**: Object Oriented Programming, Parallel Programming with CUDA, Digital Design I & II, Electromagnetics I & II, Antenna Design & Analysis, Circuit I & II, Electronic Circuits I & II, Signals & Systems I & II, Semiconductor Physics I, Statistics, and Computer Architecture