

SHIV SEETHARAMAN

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EDUCATION

Harvey Mudd College: B.S. in General Engineering

May 2019

Graduated with Distinction; Dean's List: Fall 2016, Fall 2017, Spring 2018, Fall 2018

Claremont, CA

Relevant Coursework: Autonomous Robot Navigation, Signal Processing, Control Theory, Microprocessor Systems, Digital Electronics and Computer Architecture, Data Structures, Analog Circuit Design, Electrical and Magnetic Circuits, Experimental Engineering, Linear Algebra, Differential Equations, Entrepreneurship.

SKILLS

Engineering: KiCad, LTspice, Oscilloscope, Logic Analyzer, Surface Mount Soldering, Lathe and Mill Machining

Programming: Python, C, C++, MATLAB, SystemVerilog, ROS, OpenCV, Protocol Buffers, ARM Assembly

Project Management: Gantt charts, Product Requirement Documents, Tracking Dashboards

EXPERIENCE

Waymo

August 2019 to Present

Systems Test Engineer, Sensing and Perception

San Francisco, CA

- Designed and implemented automated Hardware-in-the-Loop (HiL) fault-injection and sensor data mutation simulation testing frameworks, enabling development and execution of 600+ safety-critical tests to qualify hardware and perception releases across LiDAR, radar, and camera modalities.
- Developed guidelines and scalable work processes to enable a vendor team to build comprehensive test coverage across multiple methodologies (unit test, HiL, simulation).
- Led the end-to-end verification strategy for sensor safety mitigations across three hardware platforms, managing cross-functional schedules, dependencies, and risk across Hardware, Systems, Software, and Operations teams.

20 % Product Manager, Sensor Health (Perception)

July 2022 to October 2023

- Drove the planning, execution, and alignment of three key cross-functional projects to make the RO fleet easier to maintain and scale, relying less on manual intervention: automated sensor calibration/validation request system, mileage-based sensor validation cadence, and natural-scene based lidar validations.

X, the Moonshot Factory - [Project Taara](#)

May to August 2018

Software Engineering Intern

Mountain View, CA

- Designed, built, and tested a HiL system to emulate atmospheric effects and measure free-space optical communication system performance (e.g. throughput, bit-error rate, and re-transmission rate).
- Built a system telemetry and performance visualizer to expedite system monitoring during remote deployments.

Open Devices Engineering Lab at Harvey Mudd College

May to July 2017

Summer Research Assistant

Claremont, CA

- Designed and built a low-cost (~\$15) network analyzer PCB to generate a sine wave sweep (10kHz - 20 MHz) and measure frequency response. Set up a CMSIS-DAP open-source toolchain, configured peripherals on an STM32 microcontroller, and wrote interfaces with other ICs. Explored time interleaved sampling algorithms to increase sampling rate while using lower-cost, slow ADCs.

PROJECTS

mmWave Radar Object Tracking (capstone project sponsored by Techmation)

September 2018 to May 2019

Robotics Software Engineer; Spring Team Lead; Team of 5

Claremont, CA

- Implemented an Extended Kalman Filter (EKF) multi-object detection and tracking algorithm in Python using radar point cloud. Tested algorithm latency and used ROS to evaluate system performance on a robot with embedded compute to track and avoid both static and dynamic obstacles, in sparse and cluttered environments.

Floating Light Show Robots (capstone project sponsored by WET Design)

January to May 2018

Hardware Engineer; Team of 5

Claremont, CA

- Designed, assembled and tested a constant current driver PCB for four high-power (~1W) LEDs to be visible from 50' away. Implemented thermal and current management features on PCB.
- Programmed and tested a PID controller in Python for floating robots to autonomously track a desired trajectory.

Vision Based Localization and Path Planning

April to May 2018

Autonomous Robot Navigation course project; Team of 2

Claremont, CA

- Implemented a Particle Filter to localize a wheeled robot using encoders and an overhead camera. Estimated robot heading using OpenCV. Wrote a single-query PRM planner to drive the robot from a start to goal state autonomously - website: bit.ly/2OrxaaJ.

ACTIVITIES

Emerging Leaders Program, Waymo (Cohort 1)

April to October 2023

Associate and Startup Mentor, Pomona Ventures

September 2018 to May 2019

Team Lead, Autonomous Campus Robot project

September 2018 to May 2019