SHIVANI SHAH

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WORK EXPERIENCE

Neuralink **Fremont, CA**

System Electronics – Surgical Robot June 2018 - Present

- Assembling components for robot hardware in the loop (HIL) tester and writing automated tests using Python.
- Designed a fifteen-channel light emitting diode (LED) driver printed circuit board (PCB) to pulse with independent duty cycles synchronously with robot camera frame rates. This reduced power requirements for the system and improved mechanical packaging.
- Integrated all peripheral circuitry required for robot digital input and output including hit and hold solenoid drivers and closed loop laser drivers on one PCB resulting in the reduction of robot manufacturing time by approximately 8 hours, saved $1000 in cost over 10 robots and improved serviceability.
- Tested and selected electronics for a Low Voltage Differential Signal (LVDS) commutator which allowed for multiple hours of neural activity recordings with minimal human interference.
- Created manufacturing drawings of full robot wire harness using Solidworks Electrical 2D. This resulted in automation of harness documentation such as creating part libraries and bill of materials (BOM).

Tesla Energy **Palo Alto, CA**

Firmware Intern June 2017 – August 2017

- Determined analog circuit and firmware algorithm for solar arc fault detection through data collection in the lab and field and simulation in MATLAB.
- Modeled industrial inverter state machine using MATLAB state flow which resulted in easier component debugging and cleaner overall model workflow.

Microsoft **Redmond, WA**

Software Development Intern June 2016 – August 2016

- Wrote test applications targeting difficult to reproduce corner-cases, catching several bugs in the new API and resulting in a smoother product release.

EDUCATION

University of Michigan **Ann Arbor, MI**

BSE, Electrical Engineering - GPA: 3.606/4.000 April 2017

MSE, Embedded Systems - GPA: 3.218/4.000 April 2018

LEADERSHIP EXPERIENCE

Baja Racing SAE **Ann Arbor, MI**

CVT System Co-Lead, Testing Lead September 2013-April 2018

- Led the design of Michigan Baja's first ever electronically controlled variable transmission (EVT) which reduced tuning and manufacturing time of the system.
- Utilized strain gauges and hall effect sensors on a custom CVT dyno to measure torque and speed of both primary and secondary clutches. This data allowed us to verify efficiency of CVT and shifting characteristics such as engagement point, steady state RPM of the primary clutch and shift ratio.

Embedded Control Systems **Ann Arbor, MI**

Graduate Instructional Assistant January 2017-April 2018

- Lead weekly labs and office hours. Topics included memory mapped I/O, Interrupt Basics, CAN communication, PID control, and Real-time Scheduling.

SKILLS

Computer Aided Design: Solidworks (Mechanical and Electrical 2D), CATIA, Altium
Communication Protocols: I2C, SPI, UART, CAN, LVDS
Programming Languages: C++, Python, C
Machining: Mill, Lathe, Band Saw, Chop Saw