MIHIR SHEVGAONKAR

mihir@protonmail.com
(408)-772-1026

PROFILE

Website: www.mihir.space
Github: github.com/mihirus

UC Santa Barbara 2021
B.S. Electrical Engineering
3.80

COURSEWORK

Analog Circuit Theory
Computer Vision
Differential Equations
Haptics
Linear Algebra
Logic Design
Probability & Statistics

HARDWARE

Analog Circuit Design
Analog Test Equipment
PCB Design
Arduino, Raspberry Pi
Battery Design
3D Printing, Machining
Composites
AVR Microcontrollers

SOFTWARE

Python(Numpy, Keras, OpenCV, PIL), Embedded C
Jupyter Notebook
Git, Makefiles, Bash
Altium Designer
Kicad
HTML, CSS, Javascript, Bootstrap
Solidworks
LaTEX, Asymptote

EXPERIENCE

CTRL-Labs

Hardware Engineering Intern
06/2019 - 09/2019

- Worked on analog front-end(AFE) of electromyography armband that decodes physical muscle movement from signals travelling through neurons in the arm
- Proposed and executed AFE biasing voltage changes that save space, power, and complexity - tested by cutting PCB traces and soldering jumpers, extensively verified and analyzed results in Jupyter Notebook - change will make its way into product
- Performed oversampling experiments to verify SNR improvements, uncovered and diagnosed SPI timing issues that were exacerbated at higher sampling rates
- Built automatic AFE test system using audio equipment+Python, designed fixtures

RPL at UCSB

Web Developer & Finance Lead
10/2018 - 06/2019

- Helped found Rocket Propulsion Laboratory, a pioneering aerospace group at UCSB
- Designed website **www.rplatucsb.com**
- Commissioned logo design from artist

UCSB Hyperloop

Power Systems Engineer
10/2017 - 07/2018

- Part of 12 person UCSB crew that won the levitation competition at the 2018 SpaceX Hyperloop Competition
- Designed power distribution system for motors, PCB, and sensors on pod

PROJECTS

Ball Balancing Robot(BB-9)

~In Development

- (BB-8+1) Robot that balances on spherical wheel - a soccer ball
- Modeled two spheres, one on top of another, using Lagrangian mechanics; linearized this system and got PID
- Designing PCB with microcontroller, IMU, compass, ADC inputs, and PWM outputs for tight control over timing and I/O

CNC Router

- Built aluminum CNC router fully designed in Autodesk Inventor prior to assembly
- Used Fusion 360 for G-code generation, 6-axis TinyG controller for stepper control, Chilipeppr for serial output
- 150cm rack and pinion x-axis, 120cm precision lead screw driven y-axis, 8cm precision lead screw driven z-axis

Weight Sensing Electric Longboard

- Built a longboard that links the stance of the rider to the board's acceleration
- Arduino Due microcontroller converts pressure sensor data to forward or reverse acceleration using control logic
- Dual 2kW motors mounted in custom printed housings enable board to exceed 25 mph

And More

- Built a bamboo bicycle with heat treated bamboo tubes and joints made of hemp fiber and epoxy resin(and I can actually ride it too)
- Built my personal website **www.mihir.space** using HTML, CSS, and Bootstrap; features pictures and videos of all my projects!