Malav Shah

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EDUCATION

The University of Texas at Austin — B.S Electrical and Computer Engineering Honors — December 2021
GPA: 4.0/4.0
Courses: Algorithms, Software Dev I & II, Digital Logic, Intro to Embedded Systems
Certifications: Machine Learning, Operating Systems, Digital Image Processing, Digital Signal Processing

RELEVANT EXPERIENCE

Human Signal Lab | **Undergraduate Research Assistant** | *UT Austin* — September 2019 - Present
- Designed feature extraction program to process real-time sensor data on embedded system in C
- Implemented ML models (KNN, Random Forrest, Linear Regression) in C for use on Nordic nRF52820 microcontroller

Texas Spacecraft Laboratories | **Undergraduate Research Assistant** | *UT Austin* — June 2019 – December 2019
- Collaborated on SEEKER II project with NASA to estimate position and pose of spacecraft on a camera feed in real time
- Enhanced and automated synthetic image data generation using Blender and python as a part of our machine learning pipeline
- Conducted flight software tests on Intel Joule 570x single board computer to track flight statistics

McAfee Security | **Engineering Intern** | *Plano, TX* — June 2017 - September 2017
- Initiated bi-weekly meetings with team members to tailor program for department need
- Designed and implemented Python script to read twelve-thousand data points from multiple excel sheets
- Automated data parsing into JSON files and file uploading to MongoDB

PERSONAL PROJECTS

EyeMove | **$20,000 MAWHIBA Award and Best in Category at International Science and Eng. Fair** — 2017-2019
- Designed circuitry to capture, filter (HPF, LPF, notch, clipper), and amplify electrooculography signals from eyes using off-the-shelf components
- Constructed full scale electric wheelchair with 48V DC motors controlled by eye signals (eye-controlled wheelchair)
- Proposed low cost solution to provided mobility and increased quality of life for people suffering severe paralysis

Image Processor — 2020
- Built digital image visualizer that allows users to create, visualize, and configure a processing pipeline
- Implemented image filters, denoising filters, and base transforms using Numpy libraries

Air-Control — 2020
- Programmed hand gesture recognition system for external computer control using machine learning algorithms on Scikit-learn
- Designed a circuitry with an array of IR sensors functioning with Arduino Uno and communication over serial port
- Achieved 94% accuracy with classification of four different hand gestures

True-HEV | 3rd Place International Science and Eng. Fair — 2015-2016
- Engineered and constructed Hybrid-Electric Engine with electric solenoids and existing Combustion pistons on one crankshaft
- Devised low-cost solution to convert existing ICE engines to electric engines and reduce carbon emissions by 50%
- Designed and fabricated PCB for power control of engine prototype capable of handling 24V and power management

Please view more projects at: **mshah0686.github.io**

LEADERSHIP

Texas 4000 | **Business Coordinator and Route Mechanic** — Fall 2018 - Present
- Bike ride the longest annual charity ride in the world, from Austin, TX to Anchorage, AK (~4,500 miles, 70 days) to spread Hope, Knowledge, and Charity about cancer across the nation
- Fundraised $4,500 for cancer research, volunteered 50+ hours at local hospitals, logged 2,000+ training miles

UT Austin ECE Tutoring Services | **Tutor** — Fall 2019 - Present
- Tutor fellow peers at university in Probability and Signal Processing courses

UT Austin Electrical and Computer Engineering Camp | **Camp Counselor** — June 2019
- Taught Embedded Systems basics (basic LED/Button operation using Arduino) to underprivileged middle schoolers in the Austin
- Mentored seven students during a week-long camp to inspire STEM interest beyond financial status