PRANAV CHAUDHARY

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Education

University of Michigan, Ann Arbor — **Ann Arbor, MI**
Bachelor of Science in Engineering — **Class of April 2022**
Major: Computer Science — **GPA: 3.64/4.00**
Coursework**:** Differential Equations, Linear Algebra, Statistics and Probability, Discrete Math, Data Mining, Data Structures and Algorithms, Foundations of Computer Science, Entrepreneurial Creativity, Design and Manufacturing, Statics, Thermodynamics
Clubs/Programs – TechLab at MCity, Materials Lab, Michigan Electric Racing, IEEE, Pi Tau Sigma, Bursley Multicultural Council

Experience

Innoviz Technologies — **August 2020 – Present**
TechLab MCity 2020 Cohort Member (Software Engineer) — **Ann Arbor, MI**
- Implemented a RESTful python controller that uses LiDAR and Computer Vision to detect pedestrians, to improves intersection safety.
- Successfully integrated LiDAR hardware with perception software and used the MCity infrastructure API to change traffic lights.
- Used MCity traffic light APIs to relay real time data to controller, and test output with our own pre-defined KPIs.

Michigan Electric Racing (Formula Electric FSAE Team) — **August 2018 – November 2020**
Suspension Analysis Lead — **Ann Arbor, MI**
- Analyzed 1000s of tires data points for 2020 racecar using MATLAB graph plotting. Suspension choices were made from this.
- Wrote algorithms and scripts in MATLAB to measure the battery's state of charge, to make it simpler for simulations.
- Lead the process of selecting and mounting potentiometer sensors on the car, to analyze data and improve suspension designs.
- Designed, manufactured, and assembled chassis and suspension components for the 2020 race car.
- Created Excel design tools, such as the steering-torque calculator, which calculates tire to steering wheel torque.

Materials Characterization Lab — **January 2020 – Present**
Undergraduate Researcher — **Ann Arbor, MI**
- Built python scripts in Abaqus from data to simulate tested material properties for 3D printing of rubber lattices.
- Performed data analysis of materials collected using machine learning to determine which polymer fits a certain role.
- Create and test FEA models so as to determine how a certain polymer will behave to different forces and environments.

Projects

Autonomous Drones Course Navigation — **August 2018 – December 2018**
Team (4 members) — **Ann Arbor, MI**
- Coded a drone to autonomously navigate a maze in C++ using LiDARs, and implemented a PID control and response filters.
- Integrated a quadcopter using BeagleBone, Arduino, and a Mission Planner Software.

Command Line Euchre — **May 2020 – June 2020**
Programmer — **Ann Arbor, MI**
- Utilized C++ to make a command-line interface for Euchre, a card game, using classes and polymorphic players.
- Developed complex, random bot strategies to simulate games, that were tested using unit test macro frameworks.

Image ReScaler using Computer Vision — **May 2020 – June 2020**
Programmer — **Ann Arbor, MI**
- Implemented computer vision model in C++ using seam carving algorithm to remove low cost seams for content-aware resizing.
- Program was tested using unit test macro frameworks.

Heterodyne AM Radio — **March 2020 – April 2020**
Lab project (Signal Processing and Systems Course) — **Ann Arbor, MI**
- Assembled and tested a heterodyne AM radio consisting of a front-end (antenna, tuneable RLC circuit and mixer), IF filter, an envelope detector, a DC blocking capacitor and a speaker.
- Measured AM demodulator performance by altering the carrier frequency, to highlight which frequencies were not observable.

PID Feedback Controller — **January 2020 – May 2020**
Lab project (Signal Processing and Systems Course) — **Ann Arbor, MI**
- Developed feedback controller using RC circuits and Op-amps, to return a step response, and tested signal response damping.
- Plotted and processed data signal responses from the oscilloscope using MATLAB.

Skills

Languages – C++, C, MATLAB, Python, R, Java
Web design – JavaScript, React-Native, HTML, CSS
Tools – SolidWorks, Siemens NX, Teamcenter, Mill and Lathe, Abaqus, Git, Bash, Linux, XCode, Docker, Gitlab, Agile, Visual Studio

Awards

Dean's List (2018 - 2019)
University Honors Award (2018 - 2019)
Pi Tau Sigma – Exclusive Honor Society only for students with a high GPA - Service Chair