





# PRANAV CHAUDHARY

 pranavc28.github.io

 pranavc28

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 pranavchaudhary

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## Education

**University of Michigan, Ann Arbor**

*Bachelor of Science in Engineering*

*Major: Computer Science*

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

**Ann Arbor, MI**

**Class of April 2022**

**GPA: 3.64/4.00**

## Experience

**TechLab at MCity**

*Software Engineer (2020-2021 Cohort Member)*

**August 2020 – Present**

**Ann Arbor, MI**

- Implemented a RESTful python controller that uses LiDAR and Computer Vision to detect pedestrians, to improve 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)**

*Suspension Analysis Lead*

**August 2018 – November 2020**

**Ann Arbor, MI**

- Analyzed 1000s of tires data points for 2020 racecar using MATLAB graph plotting. Tire 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**

*Undergraduate Researcher*

**January 2020 – Present**

**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**

*Team (4 members)*

**August 2018 – December 2018**

**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**

*Programmer*

**May 2020 – June 2020**

**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**

*Programmer*

**May 2020 – June 2020**

**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.

**Piazza Post Classifier**

*Programmer*

**May 2020 – June 2020**

**Ann Arbor, MI**

- Built a program that uses a machine learning algorithm to classify posts on Piazza, a website for asking questions, by grouping together posts that have similar key words and sentences using C++.

**PID Feedback Controller**

*Lab project (Signal Processing and Systems Course)*

**January 2020 – May 2020**

**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, Lathe, Abaqus, Git, Bash, Linux, XCode, ANSYS, 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