PRANAV CHAUDHARY

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Education

University of Michigan, Ann Arbor **Ann Arbor, MI**

Bachelor of Science in Engineering Mechanical Engineering, Electrical Engineering Minor **Graduating in 2022**

GPA: 3.61/4.00 *(Dean's List from September 2018 – Present, University Honors Award from September 2018 – December 2018)*

Coursework**:** Engineering Autonomous Drones, Engineering Coding, Design and Manufacturing of machines, Solid Mechanics, Signals and Processing, Dynamics and Vibrations, Thermodynamics, Economics – Money and Banking, Entrepreneurial Creativity

Pi Tau Sigma Member – Exclusive National Mechanical Engineering Honor Society that accepts only students with a high GPA

Project Experience

Michigan Electric Racing (Formula Electric SAE)

Vehicle Dynamics and Chassis Engineer (Suspension analysis Lead, Chassis and Suspension New Projects Lead)

- Analyzed tires for next 2020 racecar using MATLAB graph plotting, like Traction Circle. Tire choices made from these analyses.
- Cost analysis of different tire materials, like how the LCO tyre gives higher lateral forces but is overall more expensive than R25B.
- Leading new projects the VDC team will undertake, such as mountings of damper potentiometers for more accurate FEA.
- Lead in the cost analysis of different potentiometers for maximizing sensor choice quality, and ordering of potentiometers.
- Worked in creating design tools for the team, such as the steering-torque calculator, which calculates tire to steering wheel torque.
- Manufacture and design chassis and suspension jigs for the 2020 racecar.
- Perform Finite Element Analysis of suspension components to validate and improve design of these components.
- Assembled suspension components onto car.
- Lead finite element analysis to suspension components such as the rockers using ANSYS to a safety factor of 2 in my first year.

Materials and Mechanics Lab

Research Assistant

- Conduct and lead experiments to test for stress and strain of different polymers, and rubbers, for example using instron machines.
- Perform data analysis of values collected so as to determine which polymer fits a certain role.
- Use different machines to test how different polymers react to different conditions. This can be used to improve polymer formulae.
- Create and test models so as to determine how a certain polymer will behave to different forces and environments.
- Single handedly managed cost modelling of different resources and test methods for funding requests.

Remote Controlled Machine

Team Lead

- Designed remote controlled machine in Solidworks, which had a subsystem that used a hammer to push down a drawbridge.
- Adapted design to allow for pushing down a bridge to cross a gravel field, and push a block nearly 2.5 times the size of the robot.
- Manufactured all parts of this robot using mill and lathe, and with a heavy focus in CAD.
- Lead the entire team in this process, which meant overlooking budget and use of manufacturing material.

Autonomous Drones Course Navigation

In a team which had 5 students who self coded a drone

- Coded a drone to autonomously navigate a vertical/horizontal course using C++. Implemented a PID control and response filters.
- Integrated a quadcopter using BeagleBone, Arduino, and a Mission Planner Software.

Handout (Engineering Club)

Team lead and Co-founder

- 3D printed plastic prosthetic hands, and assembled these parts. Gave these hands out for free to those without hands
- Lead in the manufacturing and assembling of the 3D printed hand to ensure a strong and durable hand would be made
- Conducted research on which materials would lead to the best motion of the hand, without breaking it.
- Lead in the management of budgets and material selection, to minimize costs

Work Experience

Nanaksar crafts and repairs

Summer trainee in a fabrication workshop

- Assembled 4-piston and V8 engine. Learned about different components of an engine and the ways in which they are assembled.
- Manually cleaned and fitted engine components in the right places. These engines were then given out to customers.

Practical skills

- Mill skills
- Lathe skills
- ANSYS FEA skills
- Fluent in English, Hindi, and French – **Trilingual speaker**
- MATLAB coding
- Siemens NX and Teamcenter
- Solidworks
- C++ coding
- Excel Macros
- Welding skills
- CNC Mill trained