PRANJAL SINHA

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EDUCATION

University of Illinois at Urbana-Champaign | Grainger College of Engineering — May 2021
Bachelor of Science, Mechanical Engineering — GPA: 3.80/4.00

Comillas Pontifical University ICAI | Engineering Exchange Program, Madrid, Spain — Spring 2019

EXPERIENCE

Ford Motor Company — Dearborn, MI
Powertrain Manufacturing Engineering Intern — June 2020 – August 2020

- Recognized GD&T methods on eTransaxle machining part prints to verify accuracy amongst process evaluation sheets
- Worked with vehicle tool supplier to track latest tool delivery dates on 250 different cutting tools
- Used Teamcenter to overlay part revisions to track updates, completed 500 attributes in GB, MH, and EC control plans
- Ensured production quality of eTransaxle by analyzing tooling and gauging processes listed on component Reconciliation Matrices, engineered high quality components to be deployed in BEV Ford F-150 Lightning

Energy Transport Research Laboratory — Urbana, IL
Undergraduate Research Assistant — June 2019 – December 2019

- Researched behavior of microdroplets on superhydrophobic surfaces for implications of phase change heat transfer
- Manipulated voltage, droplet diameter, and number of droplets to obtain a trend in droplet liftoff
- Compiled data using MATLAB to find acceleration and trajectory of droplets, procured accelerations as high as approximately 50 m/s^2 under a 5 kV voltage

PROJECT HIGHLIGHTS

Robot Car with Obstacle Detection Capability, Mechatronics — Spring 2021

- Constructed a three wheeled robot car to integrate electronic and mechanical systems with TI C2000 microprocessor
- Incorporated two IR Sensors to achieve left wall following and obstacle detection capabilities using ADCD channel, employed linear interpolation to transform ADC signals of 4095 to 3.0 V when sensing for obstacles/walls
- Utilized state machines to allow robot car to switch between obstacle avoidance and XY point to point driving
- Developed an understanding of principle of operation and application of sensors to mechanical systems

Automated Slicer, Mechanical Design — Fall 2019

- Led design of housing and linkages for motorized slicer in Creo, stressing DFMA and ergonomics
- Used graphical linkage synthesis to design a crank-rocker slicing mechanism to meet mechanical requirements
- Created mechanical drawings and prepared part files for 3D printing and laser cutting

Aerodynamics Package (Rear Wing), Illini Formula Electric — Fall 2018

- Implemented a competitive rear wing to achieve a decrease in drag by 15 lbs, increasing lap time by 0.2 seconds
- Managed teams of 3-5 in manufacturing elements using carbon fiber/fiberglass layups and curing with an autoclave
- Assembled a competitive aero package 60% lighter and with 250% more downforce than previous year

EXTRACURRICULARS

Society of Engineering Mechanics, *Social Chair* — August 2019 – May 2020

- Coordinated social events for members and joint engineering organizations to promote comradery between students
- Instructed new members on how to operate Autodesk Inventor to design various parts for specific projects

Pi Tau Sigma, Alpha Chapter, *Alumni Relations Chair* — August 2019 – May 2020

- Invited to join PTS based on GPA greater than 3.5 and outstanding academic achievements during Fall 2018 semester
- Responsible for connecting with alumni and inviting them to share work with current students

SKILLS

Tools: PTC Creo, Autodesk Inventor, SolidWorks, aPriori, EagleCAD, Adobe, Microsoft Office, Git, Teamcenter, ROS
Programming/Markup Languages: Java, C++, C, Python, MATLAB, HTML, CSS, R
Languages: English (Native), Hindi (Fluent), French (Fluent), Spanish (Beginner)
Fabrication: Rapid Prototyping, Laser Cutting, Soldering, Machining, Composites Manufacturing, GD&T, DFMA, DOE