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*

Relevant Coursework: Statics, Introductory Solid Mechanics/Dynamics, Thermodynamics, Engineering Materials, Mechanical Design, Fluid Dynamics, Heat Transfer, Data Structures, Artificial Intelligence, Signal Processing, Introduction to Robotics, Senior Design, Mechatronics

WORK EXPERIENCE

Ford Motor Company | *Powertrain Manufacturing Engineering Intern* *Dearborn, MI | 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
- Utilized 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 future BEV Ford F150

Energy Transport Research Laboratory | *Undergraduate Research Assistant* *Urbana, IL | 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 *Champaign, IL | 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 ADCD 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

Aerodynamics Package (Rear Wing), Illini Formula Electric *Champaign, IL | Fall 2018*

- Implemented a competitive rear wing to achieve a decrease in drag by 15 lbs, increasing lap time by 0.2 seconds
- Fabricated rear wing element molds for carbon fiber inserts by operating CNC milling machine
- Instructed a team of students during carbon fiber setups in autoclave, produced a rear wing element of only 0.4 lbs
- Presented team's ideas to receive feedback on designs and improve integration with other subsystems

LEADERSHIP

Society of Engineering Mechanics | *Social Chair* *Champaign, IL | August 2019 – May 2020*

- Coordinated social events for members and joint engineering organizations to promote comradery between students
- Created and overlooked a social committee to teach students how to plan and set up social events
- Participated in Engineering Open House as a representative of SEM to recruit new members
- Instructed new members on how to operate Autodesk Inventor to design various parts for specific projects

Pi Tau Sigma, Alpha Chapter | *Alumni Relations Chair* *Champaign, IL | August 2019 – May 2020*

- Invited to join PTS based on 3.5 GPA or higher during Fall 2018 semester
- Responsible for connecting with alumni and inviting them to share work with current students
- Raised money at a fundraising barbecue for Brother's Brother Foundation to benefit victims of recent hurricanes

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: 3D Printing, Laser Cutting, Soldering, Machining, Composites Manufacturing, GD&T, DFMA, DOE