

# PRANJAL SINHA

217 Fennel Way, Livermore, CA 94551 | 510-386-4738 | pranjal5@illinois.edu  
www.linkedin.com/in/pranjal-sinha/ | https://sinpran.github.io/

## EDUCATION

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**University of Illinois at Urbana-Champaign** | Grainger College of Engineering  
Bachelor of Science, Mechanical Engineering  
Minor in Computer Science

May 2021  
GPA: 3.79/4.00

**Comillas Pontifical University ICAI** | Engineering Exchange Program, Madrid, Spain

Spring 2019

**Relevant Coursework:** Statics, Introductory Solid Mechanics, Introductory Dynamics, Thermodynamics, Engineering Materials, Electric and Electronic Circuits, Design for Manufacturability, Mechanical Design, Fluid Dynamics, Data Structures

## WORK EXPERIENCE

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**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, obtained accelerations as high as approximately  $50 \text{ m/s}^2$  under a 5 kV voltage

## PROJECT HIGHLIGHTS

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**Aerodynamics Package (Rear Wing), Illini Formula Electric**

Champaign, IL | Fall 2018

- Implemented a competitive rear wing to decrease in drag by 15 lbs, increasing lap time by 0.2 seconds
- Fabricated rear wing element molds for carbon fiber inserts using CNC milling machine
- Instructed a team of 3 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

**S'mores Machine, Society of Engineering Mechanics**

Champaign, IL | Fall 2017 – Spring 2018

- Designed a Marshmallow Dispenser, enabling quick turnover of marshmallows
- Deployed Arduino to control servo motors, allowing independent operation once in use
- Refined design of S'mores Machine to reduce weight and improve visual appearance
- Served over 600 S'mores to students and children during Engineering Open House

**Ergonomic Mouse Handle, Design for Manufacturability**

Champaign, IL | Fall 2018

- Constructed a PDS and QFD Matrix to delineate major points regarding design/development of product
- Utilized rapid prototyping to fabricate various handle designs which were later tested in Design of Experiments (DOE)
- Calculated an increase in retail price by approximately \$0.45 using aPriori, still undercutting competitor costs

## LEADERSHIP

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**Society of Engineering Mechanics** | *Social Chair*

Champaign, IL | August 2017 – Present

- 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**

Champaign, IL | August 2018 – Present

- 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

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**Tools:** PTC Creo Parametric, Autodesk Inventor, SolidWorks, aPriori, Adobe InDesign, Microsoft Office, Git

**Programming Languages:** Java, C++, Python, MATLAB, HTML, CSS

**Languages:** English (Native), Hindi (Fluent), French (Fluent), Spanish (Beginner)

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