Pradyota Phaneesh

pradyota.phaneesh@gmail.com | Engineering Portfolio | Linkedin | +1(408)300-6618

EDUCATION

B.S. Mechanical Engineering, Minor in Semiconductor Engineering and Science

University of Texas at Austin ; GPA: 3.93/4.0   **December 2027**

Coursework: Mechatronics, Thermodynamics, Fluid Dynamics, Solid-State Devices, Mechanics of Solids, Materials Engineering

SKILLS

Programming Languages: Python, HTML, SQL, MATLAB, LaTeX
Software: Autodesk Inventor, Fusion 360, VScode, OnShape, Blender, SolidWorks, SketchUp, Slic3r, LabView, CATIA, ANSYS

EXPERIENCE

Boeing

Final Assembly Manufacturing Engineering Intern   May 2025 – August 2025

- Investigated recurring structural and assembly defects on **Boeing 737 airframe structures** by classifying failure modes and executing root-cause analysis using **A3-reports, 5-Why's, Fishbone diagrams, and internal Boeing tools (BPSM)**, enabling targeted corrective actions on the factory floor.
- Designed and deployed **3 custom shop-floor tools** and authored **25+ revisions** to 737 Airframe Installation Plans to improve manufacturability, mechanic usability, and build sequence clarity.
- Supported production across all **7 factory flow days**, collaborating directly with mechanics, quality, and design engineering teams to resolve real-time production issues and prevent defect recurrence.
- Delivered data-driven improvement recommendations that **reduced rework and defect recurrence**, improved first-pass yield and saved **thousands of labor-hours** annually in high-impact assembly zones.

BAJA SAE - Longhorn Baja

Chassis Design Engineer   August 2025 - Present

- Designed, analyzed, and fabricated the **competition chassis** for UT Austin's inaugural Baja SAE combustion vehicle, owning the system from concept through final welded frame.
- Evaluated **12 full design iterations**, reducing the final chassis size by **~50%** relative to the initial concept while maintaining structural integrity, driver safety, and rule compliance **(Factor of Safety ≥ 2).**
- Performed extensive **ANSYS** and **MATLAB FEA** analyzing structural and parametric computations to evaluate load cases, tube sizing, weight distribution while validating torsional rigidity, strength, and impact performance before manufacturing.
- Welded and assembled multiple frames, establishing **repeatable manufacturing and welding processes** for the new team.

University of Texas, Austin - Hypothermal Bubble Etching for Sustainable Nanomanufacturing

Undergraduate Researcher   Aug 2024 - Present

- Conducted experimental research on **Optothermal Bubble Etch Lithography (OBEL)**, a sustainable, maskless subtractive nanomanufacturing technique for high-precision device fabrication.
- Investigated laser-induced microbubble formation on gold thin films to enable **localized, spatially selective etching** with minimal chemical and thermal damage. Leveraged **solutal Marangoni convection** to actively remove bubbles and reaction byproducts, producing clean, sharply defined features.
- Performed **200+ controlled experiments over 1.5 years, collecting 1000+ data points** using LabVIEW and NIS Software to optimize laser power, etchant concentration, and scan paths. Achieved **submicron feature resolution (~450nm)** at ultralow etchant concentrations, demonstrating an environmentally friendly and cost-effective alternative to conventional lithography.
- Co-authored and presented findings at **Optical Trapping and Optical Micromanipulation XXII**, with applications across electronics, photonics, and biomedical devices.

The Steam Foundation and Student Makers

3D Printing Education Leadership (Director & Instructor)   Dec 2020 – Jan 2025

- Founded and led four national 3D-printing and CAD education programs, managing curriculum, labs, and logistics; increased enrollment by **10%** and delivered hands-on instruction and mentorship to **240+ students.**

RESEARCH PUBLICATIONS

- Mass to Luminosity Ratio and Its Correlation to Dark Matter Distributions Across Galaxy Types - doi.org/10.70121/001c.121711
- Optothermally Driven Bubble Etching for Sustainable and On-Demand Nanomanufacturing - doi.org/10.1117/12.3061570
- Optothermal Bubble Etch Lithography **(publication in progress)**