

Om Chavan

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EDUCATION

Bachelor of Science in Mechanical Engineering Honors, Robotics Minor
The University of Texas at Austin | GPA: 3.87/4.00

Graduation: Dec. 2028

- Thermodynamics, Dynamics, Solids, Programming (**Python**), Robotics, Engineering Design (**SolidWorks**)

EXPERIENCE

Flight Hardware Engineer, Longhorn Rocketry Association

Sep 2025 - Present

- Led **ejection charge** setup for Aurora (competition rocket) at test and competition launches, contributing to an 11,866 ft AGL 2026 IREC flight (Mach 0.85) with nominal deployment and full recovery
- Performed 2-ply wet **carbon fiber layups** on 4 G10 fiberglass fins by aligning the sheets to the fin geometry and **vacuum-bagging** the aft fin can to remove air pockets, stiffening the fins to resist flutter at high speeds
- Epoxied G10 fiberglass centering rings to secure the N2000W motor and fabricated the main coupler to hold coaxial alignment, keeping thrust on the centerline of the 12 ft rocket for stable flight
- Scaled **SolidWorks** fin drawings to 1:1 and tiled them across taped printouts as low-cost templates for the carbon fiber layups, replacing laser cutting to stay within the club budget

SPECT Imaging Undergraduate Researcher, UT Austin

Jan 2026 - May 2026

- Benchmarked the **ICP** point cloud algorithm against **NSFP**, a neural network method, on 593 frames from a **Zivid 2+** camera on a **KUKA robot arm**, finding ICP 55% more accurate for tracking patient motion
- Built a bidirectional ICP pipeline in **Python** that averages forward and backward registrations to cancel bias, tracking motion to 0.3 mm standard deviation against encoder ground truth
- Cut tracking error from 1.84 mm to 0.5 mm RMSE by converting point clouds into the robot's world frame, isolating the target with a bounding box, and tuning **ICP** parameters
- Programmed triangle-wave and sinusoidal motion profiles on a **Thorlabs linear stage** actuator and logged encoder data as ground truth to validate the tracking algorithms

Student Engineering Council (SEC) Makeathon 2025, UT Austin

Oct 2025

- Prototyped a low-cost automated classroom attendance and participation tracking system in 48 hours as part of a 3-person team to deliver a working product to industry judges; placed 2nd of 18 teams
- Designed and **laser-cut** a 6 mm plywood enclosure panel using **Trotec Ruby** to join the **3D-printed** base and upper housing, then mounted the button input and OLED display module in it
- Designed a **PowerPoint** pitch deck covering the problem, solution, design, market, and unit cost, then led the presentation and product demo, making the business case to technical and non-technical listeners

Technical Intern, Vanguard Defense, Harvard Undergraduate Venture Program

Jul 2025 - Aug 2025

- Evaluated 8 open-source datasets across drone, radar, image, and radio frequency data to select training data for an aerial object detection model at an early-stage defense startup
- Annotated 200+ photos with bounding boxes using a programmed **Python** annotation tool and exported them in **COCO JSON** format, creating the training data for a **YOLOv8** model on military aerial vehicle recognition

SKILLS & INTERESTS

Mechanical: SolidWorks, 3D Printing (FDM, DIW), Laser Cutting, Machine Shop Fabrication, Lab/Shop Safety

Software: Python, Claude Code, Codex

Tools: Trotec Ruby, Zivid Studio, Thorlabs Kinesis, Microsoft 365, Slack, VS Code, Google Workspace

Interests: Robotics, Formula 1, Boxing