Om Chavan

Permanent Resident | (469) 469-3991 | omchavan@utexas.edu | /in/omchavan7 | omchavan.com

EDUCATION

Bachelor of Science in Mechanical Engineering Honors, Robotics Minor *Graduation: Dec. 2028*
The University of Texas at Austin | GPA: 3.87/4.00

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

EXPERIENCE

Flight Hardware Engineer, Longhorn Rocketry Association *Sep 2025 - Present*

- Led ejection charge assembly and **deployment system integration**, supporting prototype testing and validation at all launches; achieved nominal deployment and full recovery at 11,866 ft AGL (Mach 0.85)
- Fabricated and vacuum-bagged 2-ply **carbon fiber layups** on 4 G10 fiberglass fins to improve structural stiffness and resist aerodynamic flutter during high-speed flight
- Integrated **propulsion hardware** by bonding G10 fiberglass centering rings and fabricating a main coupler to maintain coaxial motor alignment and stable thrust transfer in a 12 ft rocket
- Produced 1:1 manufacturing templates from **SolidWorks** fin drawings for composite fabrication, developing a low-cost alternative to laser-cut templates within project budget constraints

SPECT Imaging Undergraduate Researcher, UT Austin *Jan 2026 - May 2026*

- Evaluated ICP **point cloud tracking** against NSFP, a neural network method, across 593 frames acquired using a Zivid 2+ 3D camera mounted on a **KUKA robotic arm**, demonstrating 55% higher tracking accuracy
- Developed and validated a bidirectional ICP algorithm in **Python** using forward and backward point cloud registration, achieving 0.3 mm standard deviation against encoder ground truth
- Reduced motion-tracking **RMSE** from 1.84 mm to 0.5 mm through coordinate frame transformations, target segmentation, and algorithm parameter optimization
- Programmed sinusoidal and triangular motion profiles on a **Thorlabs linear actuator** and acquired encoder data to validate sensor-based motion tracking algorithms

Student Engineering Council (SEC) Makeathon 2025, UT Austin *Oct 2025*

- Designed, fabricated, and tested an automated attendance and participation tracking classroom **prototype** in 48 hours with a 3-person team, placing 2nd of 18 teams
- Manufactured a 6 mm **laser-cut** plywood enclosure panel in **Trotec Ruby** and integrated button and OLED display hardware into a 3D-printed assembly, supporting rapid prototype development
- Prepared engineering design and **cost documentation** and led a technical product demonstration for industry judges, communicating design decisions and prototype functionality

Technical Intern, Vanguard Defense, Harvard Undergraduate Venture Program *Jul 2025 - Aug 2025*

- Evaluated 8 open-source datasets spanning drone, radar, imagery, and radio frequency data to support **sensor data analysis** and aerial object detection model development at a defense startup
- Annotated 200+ images with bounding boxes using a Python-based tool and exported COCO JSON datasets for **YOLOv8** machine learning-based object detection and military aerial vehicle recognition

SKILLS & INTERESTS

Mechanical: SolidWorks (CAD & Engineering Drawings), Onshape, Fusion360, Laser Cutting, Mechanical Assembly Composite Fabrication, 3D Printing (FDM, DIW), Machine Shop Fabrication, Prototype Development
Software: Python, Point Cloud Processing, Computer Vision, Data Acquisition & Analysis, Claude Code, Codex
Tools: Trotec Ruby, Zivid Studio, Thorlabs Kinesis, Microsoft 365, VS Code, Google Workspace
Interests: Aerospace, Robotics, Autonomous Systems, Formula 1, Boxing