Om Bhatt

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Education

Texas A&M University *College Station, TX | May 2028*

Bachelor of Science in Mechatronics Engineering, Minor in Embedded Systems

Coursework: Calculus I–III, Differential Equations, Electricity & Magnetism, Engineering Mechanics, Metallic Materials, Circuit Analysis, Analog Electronics, Digital Electronics, Embedded Systems Development in C

Skills

Hardware and Prototyping: ESP32, Arduino, RPi, STM32, LiDARs, Cameras, Soldering, PCB Design
Programming: Python, C/C++, ROS2, Linux, Shell (Bash/Zsh), LATEX
Simulation and CAD: SolidWorks, Autodesk Inventor, Onshape, Bambu Studio, Eagle, Multisim, MATLAB

Relevant Experience

R&D Robotics Engineer | *T.U.R.T.L.E Robotics, Texas A&M University* ***College Station, TX*** **| Sept 2025 – Present**

- Collaborating to research and implement ROS 2 Humble, PX4, and MAVROS frameworks in simulation environments for a UAV swarm platform assisting first responders with visual data, mapping, and minimal human input during disaster response missions.
- Co-authored and presented the "Disaster Response Observation Network (DRON)" showcase poster (Apr 2026).

Hardware Team Member | *TAMU Robomasters, Texas A&M University* ***College Station, TX*** **| Sep 2025 – Present**

- Designing robust structural components using OnShape CAD for the fully autonomous, computer-vision-driven Sentry Robot.
- Integrated the NVIDIA Jetson Orin, LiDAR sensors, and cameras into the system for real-time perception and decision-making.

AEOP Summer Robotics Research Intern | *Center for Autonomy, UT Austin* ***Austin, TX*** **| June 2025 – Aug 2025**

- Architected a low-cost, 1/16 scale autonomous RC car using ROS2 to create a modular research platform for complex drift and jump navigation studies.
- Executed the complete electromechanical assembly by designing and soldering custom circuit boards to successfully power and integrate all components, including a Raspberry Pi 5/Jetson Nano and motor controllers.
- Programmed a robust low-level controller in a C++/ROS2 software stack to achieve precise Ackerman steering and throttle control for the vehicle.
- Successfully established full teleoperation capabilities and utilized the F1Tenth simulator to validate SLAM and control algorithms, preparing the platform for fully autonomous operation.

Mechatronics Research Intern | *Mechatronics Vehicle Systems Lab, University of Waterloo* ***Waterloo, ON*** **| Jun 2021– Sep 2021**

- Designed, fabricated, and programmed an LED display module for the WATonoBus autonomous shuttle to inform non-ego agents of the shuttle's intentions.

Projects

T.U.R.T.L.E Robotics Hatchling Robot | *ESP32, C/C++, Solidworks* **Jan 2025 - Sep 2025**

- Won 2nd Place out of 30+ competing teams at the 2025 TURTLE Robotics Hatchling Competition.
- Designed and CADded key mechanical components in SolidWorks, including a forklift-style lift and gripper mechanism engineered for rapid block acquisition.
- Programmed an ESP32 and Arduino to control precise vehicle navigation and operate the multi-stage lift, enabling the robot to successfully retrieve and stack multiple blocks.

EcoTrack: Dual-axis Solar Tracker | *ESP32, C/C++, Solidworks, FEA, Thermo-responsive polymers* **Sep 2022 - Mar 2024**

- Engineered a low-cost, nature-inspired phototropic solar tracker using thermo-responsive polymers, outperforming traditional dual-axis trackers by 87% in net energy harnessed.
- Achieved 1st place at the Austin Regional Science Fair, advanced to TXSEF State Fair, and won a $2,000 Jacobs Engineering Scholarship and the RICOH Sustainable Development Award.

Volunteering & Leadership

Design Review Officer | *T.U.R.T.L.E Robotics, Texas A&M University* ***College Station, TX*** **| Sep 2025 – Present**

- Providing specialized input during design reviews and in the Q/A channel for project progression and improvement.

TXSEF Science and Engineering Fair Judge | *Texas A&M College of Engineering* ***College Station, TX*** **| Sep 2025 – Present**

- Evaluate 20+ student research projects annually in the Energy: Sustainable Materials & Designs and Robotics & Intelligent Machines categories at the Texas Science and Engineering Fair TXSEF.

Sponsorship Committee Member | *T.U.R.T.L.E Robotics, Texas A&M University* ***College Station, TX*** **| Sep 2025 – Jan 2026**

- Secured corporate sponsorships for TURTLE through a new Corporate Sponsor Outreach Initiative by developing and executing outreach strategies to engage companies and fund workshops, social events, and advanced technical projects.