**Aditya Sitaram Pulipaka**
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## EDUCATION

**The University of Texas at Austin, Cockrell School of Engineering** May 2028
Bachelor of Science in Electrical and Computer Engineering (Robotics Minor, Entrepreneurship Minor) GPA: 4.00

- Track: Computer Architecture / Embedded Systems (Engineering Honors + ECE Honors)
- Coursework: Embedded + Real-Time Systems (RTOS), Computer Architecture, Digital Logic Design, Linear Systems + Signals, Multivariable Calculus, Linear Algebra, Differential Equations, Circuit Theory, Quantum Computing, Neural Engineering

## SKILLS

**Programming:** C, C++, Python, MATLAB, Assembly, C#, Flutter, HTML/CSS/JavaScript, SQL, TypeScript
**Hardware Skills:** Verilog (Vivado), Computer Architecture, Embedded System Design
**Technologies:** ROS/ROS2, FreeRTOS, ESP-IDF, Linux, Claude Code, Arduino, Docker, Github, Jupyter, Node.js
**Libraries:** OpenCV, PyTorch, TensorFlow, Express.js, Open3D, HuggingFace, SKLearn, NumPy, Pandas

## TECHNICAL EXPERIENCE

**Qualcomm** Austin, TX
Windows-Platform Sensors Team: Driver Development SWE intern May 2026 - Present

- Expanded **C++ driver** functionality to support multiple kernel-level and user-level subscribers to laptop hinge position
- Will create **unit testing** framework for all sensing targets on next-gen Windows-on-Snapdragon laptops

**UT Autonomous Mobile Robotics Laboratory** Austin, TX
Undergraduate Researcher, Perception Jan 2026 - Present

- Implementing true markerless stereo calibration from **VGGT, SAM3D Body**, and **custom floor plane generator**
- Facilitating multi-person **pose estimation** for 100+ person lobby using **DeepStream with auto-calibration** (above method)
- **Optimized network bandwidth** for 6 cameras sharing 1Gbps at 10Hz 1440x1080 each, using action commands + trigger delays

**Texas Guadaloop** *(Student-Led Hyperloop Team)* Austin, TX
Levitation Sub-Team Lead Sep 2024 – Present

- Leading team of three engineers through **research and development** of Laplace-domain system representation and PID algorithm
- Designed and constructed **universal** magnetostatic and mechanical **sim environment** for any controller, including **PID, RL**
- Automated electromagnet winding using Arduino, ensuring precision, consistency across coils and saving 2hr/prototype

**Bell Flight** Fort Worth, TX
Flight Control Systems: Embedded Software Intern Jun 2025 – Aug 2025

- Developed end-to-end solutions for 6 **embedded C** issues and automated 3 testcase batches with TCL scripting
- Resolved 13 key issues with **.NET** windows app, from **UI/UX** and file formatting to **serial communication**
- Led development of **Python tool** for test **environment transition**, ensuring scalability and readability
- Proved functionality, converting 100,000+ control signals, 9 interface classes, 1000+ scripts & **saving 6-12 months** of labor

**UTD Nova** Richardson, TX
Navigator Autonomous Vehicle: Perception Software Developer May 2025 – Aug 2025

- Developed **LiDAR SLAM** + map-based localization pipeline, using **Open3D** to optimize KISS-SLAM & KISS-ICP
- Leveraged **ICP**, **ORB** feature-matching to develop real-time localization nodes achieving **sub-5cm accuracy** in CARLA

## PROJECTS

**TweinOS + Autonomous Car (LinkedIn Post, OneDrive Link due to ECE445M class policy)** Jan 2026 – May 2026

- Built **priority scheduler**, main and background **thread management**, dynamic process loader, **proprietary heap and filesystem**
- Partnered with 3 engineers to bring autonomous car online using **self-made RTOS**, motor control, sensing, communication stack
- Designed and implemented **augmented PID controller** with impending **collision avoidance** and **overtake logic**, leading to win

**RescueVision (Github Link, DevPost Link, LinkedIn Post)** Apr 2026 – May 2026

- Led team of 4 engineers to tie together **60-GHz radar**, ESP32 **USB host** protocol, **ESP-NN** inference, **BLE**, and Apple's **ARKit**
- Built working demo within 36 hours, able to reliably distinguish movement through light debris and drywall.

**SmartPT (Github Link, DevPost Link, LinkedIn Post)** Jan 2026

- Employed **Kalman filtering** sensor fusion to augment 30Hz **RTMpose** limb tracking with 100Hz **IMU**-based joint angles
- Ensured **I2C** IMU data synced with CV data through **ESP32 BLE** transmission, **Flutter** frontend and **python backend**

**BlindMaster (Github Link)** Dec 2025 – Apr 2025

- Developed full-stack **IoT** system with Flutter app, secure **Node.js** server via Cloudflare tunnel, modular physical device
- Leveraged ESP-IDF with FreeRTOS to ensure **efficient HTTPS, WSS, BLE** comms, bringing CPU active time below 10%