

# Ishan Deshpande

## EDUCATION

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### UT Austin

**B.S. in Electrical and Computer Engineering**

**May 2025**

**M.S. in Electrical and Computer Engineering (Spec. Embedded Systems)**

**May 2026**

3.79 Undergraduate GPA

**Relevant Coursework:** Embedded Systems Lab, Compilers, Operating Systems, Digital Logic Design, ML/HW Codesign, Computer Architecture, Algorithms, Data Science Lab, Software Design & Implementation I/II, RTOS

## EXPERIENCE

### Meta Reality Labs

**May 2025 - Aug 2025**

*Embedded SWE Intern*

*Pittsburgh, PA*

- Built a Python assembler, emulator, and verifier for a custom state machine and instruction set, boosting development speed and reliability.
- Integrated ultrasonic, radar, and IMU sensors into a real-time headset pipeline, enabling advanced multimodal sensing.

### Tesla

**May 2024 - Aug 2024**

*Body Controls Firmware Intern*

*Palo Alto, CA*

- Enhanced future firmware reliability by implementing tooling PC-Lint for static code analysis on Renesas microcontroller
- Assessed non-volatile memory usage across all body control modules by introducing CAN logging for EEPROM usage
- Improved vehicle performance by fixing various bugs and implementing features related to sensor calibration and interfacing (mirror heaters, trailer brake sensors, overhead lights, door actuation)

### Garmin

**May 2023 - Aug 2023**

*Flight Control Systems Firmware Intern*

*Olathe, KS*

- Accelerated aircraft control module testing by writing a Python SIL simulation for vertical navigation and altitude tracking
- Optimized flight control module performance by developing HIL unit tests in C within an RTOS environment

### University of Texas at Austin

**Jan 2023 - Present**

*Operating Systems TA*

*Austin, TX*

- Enhance understanding of OS concepts for 70+ students through effective instruction
- Improve project outcomes by debugging issues in User Programs, Virtual Memory, and Filesystems with PintOS

*Embedded Systems Tutor*

- Elevated students' understanding of embedded systems by teaching key concepts such as interrupts, DAC/ADC, finite state machines, and serial communication, resulting in improved project performance and comprehension

## ACTIVITIES AND PROJECTS

### Longhorn Racing Solar Car

**Sept 2021 - Present**

*Platform Team Lead*

- Improved robustness of on-vehicle firmware updates by developing a UART/CAN bootloader (custom linker script and flash memory driver)
- Increased remote testing accessibility by designing a 12V/100W power supply PCB featuring USB-C Power Delivery

*Controls Team Lead*

- Programmed in an RTOS context for our platform of STM32 microcontrollers (display, motor controller)
- Managed a team of 12 through a traditional software workflow with Git/GitHub

### UT Systems and Machine Learning Research

**Oct 2024 - Present**

*Undergraduate Research Assistant*

- Researching energy attribution for serverless functions in the cloud

### UT Embedded Systems Lab Design Competition - 3rd Place

**Apr 2024**

*Embedded Software Engineer*

- Collaborated with a team of 4 to develop a GameBoy emulator on a TM4C microcontroller
- Designed a circuit board in KiCAD and worked with protocols such as SPI/QSPI and 16-bit parallel

### UT Real-Time Operating Systems Graduate Project

**Apr 2025**

*Embedded Software Engineer*

- Interfaced with a Wifi-Ethernet bridge chip and wrote MAC, IP, UDP, ICMP, ARP, and DHCP drivers from scratch
- Demonstrated functional ping and netcat implementations on an RTOS

Skills: C, KiCAD, Python, Verilog, Vitis HLS, Kernel Development, Application Development for RTOS, Linux, Git, Docker, AWS, Java

Interests: Table Tennis, Music Production, Piano