

# Tanay Ashok Reddy

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## EDUCATION

**Michigan State University, College of Engineering**  
*Bachelor of Science, Computer Engineering (GPA: 3.6/4.0)*

East Lansing, MI  
May 2025

- **Awards:** Deans' List (4x) International Tuition Grant, Spartahack 8 Winner, AI Club Best Implementation.

## EXPERIENCE

**Hardware Engineer**  
*BluLateral*

Jul. 2025 – Present  
East Lansing, MI

- Designed and iterated PCB prototypes integrating electrodes, optical sensors, and microcontrollers, optimizing reliability of bio-signal acquisition in skin-contact environments.
- Programmed and refined embedded-C firmware with BLE communication protocols, enabling synchronized bilateral stimulation and low-latency data transfer across devices.
- Led end-to-end hardware-software validation cycles, coordinating sensor calibration, power profiling, and iterative troubleshooting to improve performance in early-stage human trials while ensuring manufacturability and alignment with product development goals.

**Undergraduate Research Assistant**  
*Michigan State University*

Apr. 2024 – June 2025  
East Lansing, MI

- Integrated embedded systems for Lunchbox (NIH-funded \$2.78M microscale chemical analysis device), performing PCB and Arduino bring-up, hardware calibration, and system-level data validation.
- Engineered quaternion-based orientation tracking to measure head pose; validated against motion capture systems to achieve  $<10^\circ$  angular error in signal processing accuracy.
- Developed Python/TensorFlow pipelines for IMU-based engagement detection; automated lab test collection in Linux, achieving 86%+ classification accuracy in real-time scenarios.

**Cloud / Development Intern**  
*Sybyl Limited*

Jun. 2023 – Aug. 2023  
Nairobi, Kenya

- Deployed Odoo ERP modules for 300+ users, integrating PostgreSQL, Python, HTML, and JavaScript; delivered \$50K+ savings by reducing licensing costs.
- Managed cross-regional teams (Kenya, India, U.S.), deploying weekly updates on GitHub, optimizing Ubuntu servers, and mentoring developers in automation scripting.

## PUBLICATIONS

- Reddy, T., Lobert, S., Quadras, N., & Mason, A. J. (2025). Wearable Device for Real-time Assessment of Facing Time in Small Group Social Interactions. Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS), London, UK. <https://doi.org/10.1109/ISCAS56072.2025.11044296>.

## SKILLS

- **Hardware & Lab:** Oscilloscope, Logic Analyzer, Function Generator, Multimeter, PCB Prototyping, Soldering/Rework
- **Programming & Tools:** Python, C++, Java, Javascript, Embedded-C, MATLAB, Verilog, VHDL, SQL, Git, SPICE, HTML, CSS, Swift
- **Systems:** Linux/Ubuntu, Bash/Shell Scripts, Microcontrollers (ARM, Arduino), BLE Protocols Linux/Ubuntu, Bash/Shell Scripts, Microcontrollers (ARM, Arduino), BLE Protocols

## PROJECTS

**MindMouse (Spartahack 8 Winner)**

East Lansing, MI

- Engineered a hands-free computer control system for paraplegics using facial and eye-tracking with OpenCV and PyAutoGUI, enabling cursor navigation and mouse clicks through real-time gesture recognition.

**NLP Discord Moderator Bot (MSU AI Club Best Implementation)**

East Lansing, MI

- Designed a scalable moderation bot for Discord using TensorFlow, Perspective API, and MySQL to analyze message toxicity in real time, log repeat offenders, and automate community guideline enforcement.