Vivek Matta

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EDUCATION

Northwestern University • *Masters of Science, Computer Engineering* **Expected June 2027**

- Specialization: Internet of Things & Edge Computing
- Relevant Coursework: Machine Learning, IoT Sensors & Systems, Microcontroller Design

Purdue University • *B.S., Computer Engineering, Minor in Mathematics* **August 2021 - May 2025**

- Relevant Coursework: Embedded Systems, Digital Systems and Design, Advanced C Programming
- Awards and Honors: Dean's List (Fall 2021)

EXPERIENCE

Embedded Software Engineer Intern • *Cambridge Mobile Telematics* **June 2025 – Aug 2025**

- Co-developed a benchtop shake table for accelerometer and IoT testing, programming low-level C firmware to generate 0–3200 Hz vibration profiles for precise hardware validation
- Initiated and developed a Python logging tool, cutting test iteration time by 40% and improving debugging efficiency across engineering teams
- Led cross-functional collaboration with mechanical and sensor teams to define interface requirements and testing protocols, accelerating hardware validation across multiple product iterations

Software Engineer Intern • *Cambridge Mobile Telematics* **June 2024 – Aug 2024**

- Implemented Twilio and ConnectedU APIs for 12,000+ SIMs and built monitoring dashboards, reducing anomaly response time by 50%

PROJECTS

DIY "Bop It!" • *CE346 Embedded Systems Project, Northwestern University* **September 2025 – December 2025**

- Programmed the Micro:bit in embedded C to run a real-time sensor game loop using a rotary encoder, flex sensor, button, microphone, and IMU via GPIO and I²C
- Implemented synchronized audio playback and latency-critical input validation under tight memory and timing constraints

Embedded Systems Design Lead • *Team 15 – Notiphones, Purdue University* **January 2025 – May 2025**

- Designed and programmed an ESP32-S3-based wearable haptic headphone module that delivers sub-1s vibration feedback when the system detects a wake-word
- Built low-level drivers for PWM motor control, RGB LEDs, USB-C power, and BLE communication, ensuring reliable real-time response
- Led system bring-up and schematic reviews, debugging cross-team integration between ML wake-word models and hardware interfaces

SoCET Project • *System-on-Chip Daughter Board Design & PCB Development* **September 2024 – January 2025**

- Designed a compact 2-layer M.2 daughter board integrating power regulation, clock generation, memory, and USB-UART for Caravel eFabless SoC bring-up
- Validated SPI, UART, and I²S interfaces using ERC checks, direction analysis, and hardware bring-up testing

TECHNICAL SKILLS

Hardware & Systems: Embedded C, C/C++, SystemVerilog, Microcontrollers (ESP32, STM32), PCB Design (KiCAD, Eagle)

Software & Tools: Python, Java, Swift, SQL, Git, MATLAB