Murali Peddi

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Education

New York University **Expected Graduation – May 2026**

MS in Computer Engineering *NYC, New York*

- Coursework: Machine Learning, Embedded Systems, Computer System Architecture

Vellore Institute of Technology **Sep. 2020 – May 2024**

BS in Electronics and Communication Engineering *Vellore, India*

- Coursework: Micro-Controllers, Digital Logic Design, Analog Electronic Circuits, Signal and Image Processing

Experience

Graduate Assistant, New York University CAN Lab **Sep 2024 - Present**

- Coordinated on a research to implement Lane Changing for Autonomous Vehicle Algorithms utilizing Computer Vision and Machine Learning techniques on Linux based system, integrating Intel's RGBD Camera and April Tags.
- Implemented Multi-threading and Inter-process Communication and programmed to send PWM signals wirelessly using RF modules, improving system by 20%.

Embedded Engineer Intern, Stingfly Aerospace **Nov 2023 - Apr 2024**

- Conducted research related to the development of UAVs and streamlined **firmware programming** and circuit design.
- Calibrated Torque, Thrust, and RPM for an innovative thrust stand, resulting in a 15% increase in efficiency.

Embedded Systems Engineer Intern, JOL Energy **Aug 2023 - Oct 2023**

- Designed Schematics and PCB that facilitated seamless communication between the payment server and ESP32 using the HTTP protocol, enabling the charging process upon payment confirmation for an EV Charging Station.
- Improved security and power efficiency by 15x through the development of a payment system using LoRaWAN Protocol.

Research

Real Time Audio Recognition for Hearing Impaired, IEEE | *Signal Processing, Tensorflow, CNN* **May 2024**

- Developed a real-time multi-model **deep learning** algorithm for parallel monitoring of environmental sounds and specific wake-word to activate speech recognition for every 10 seconds.

Accident Prevention for Autonomous Vehicle, IEEE | *C, ATmega328P* **May 2023**

- Implemented an accident prevention algorithm that employed sensor fusion techniques to detect obstacles, lanes, and 5 potential collision scenarios in real-time.

Projects

Gesture Based Unlock System | *Embedded Systems,* ***ARM Cortex M4*** *, SPI*

- Utilized data from a gyroscope on STM32F249ZI to record hand movement sequences to unlock a system. Implemented a user interface that requires replication of the key sequence within specified tolerances.
- Developed a 'Record Key' feature to save the recorded sequence and an LED to indicate successful resource unlocking.

6502, An 8-bit Computer | *Computer architecture, 6502 CPU, EEPROM, Assembly*

- Developed a fully functional 6502-based 8-bit computer system by integrating peripherals such as keyboard, LCD and OLED displays, through effective design on breadboard.

Automatic Billing Cart using 8051 Micro-controller | *C, Proteus, Keil*

- Integrated RFID reader and Buzzer with the 8051 microcontroller to detect products placed in the shopping cart, performing RFID data processing, product list management, and bill calculation.

Technical Skills

Languages:	Python, C/C++, Embedded C, Assembly, Matlab
Frameworks:	Scikit, TensorFlow, OpenCV, Keras, Numpy, Pandas, Matplotlib
Tools:	Jupyter, VSC, Git, MATLAB, Eagle, KiCAD, Altium, Proteus, Keil, LTspice, Multisim, ModelSim
Microcontrollers:	STM32, NVIDIA Jetson AGX Xavier, Raspberry Pi, ESP8266, Arduino, 6502, 8051
Protocols:	USB, SPI, I2C, UART, ADC, GPIO, PWM, Timers
Hardware:	Embedded Systems, Circuit Design, PCB Design, Analog and Digital Circuits
Software:	Data Structures and Algorithms, OOPS, Machine Learning, Computer Vision, Operating Systems
Soft skills:	Team Management, Communication, Problem-Solving, Collaboration

Extra Curricular

- Represented VIT Vellore at the BAJA SAE INDIA competition, collaborated and guided 35 juniors in manufacturing electrical ATVs. Broadened in circuit design, wiring, Grounded Low Voltage systems, and **Data Acquisition** for EV.
- Operated an Embedded systems Offline workshop for 50 attendees in the IEEE MTTS Student Chapter.
- Conducted work sessions on python programming as a technical member of the MATRIX club.