

## Overview

Embedded Engineer with 1+ years of experience in developing real-time systems and intelligent automation using FreeRTOS, STM32, and ESP32. Skilled in embedded C, Linux kernel modules, and AI prompt engineering for system-level control and workflow automation. Comfortable working across both hardware and software layers, with a focus on building practical, efficient, and innovative tech solutions that make a real impact.

## Skills

### Programming Languages

Python | C++ | Embedded C

### IDE Tools

STMcube IDE | Keil IDE | Arduino IDE

### AI & ML

Gen AI | AI Agent Building | Prompting | Workflow Automation

### Hardware Boards

Tiva C Series | STM F4 Discovery Series | Arduino

### Version Control Tool

Git

## Work Experience

### AI & Prompt Engineering Intern

JAN 2025 - JUN 2025

#### Self-Initiated & Certification-Based Learning

- Specialized in AI prompt design using Flowise for structured automation tasks such as email generation, HR workflows, and manager communications.
- Applied real-time systems thinking, developed agent-based pipelines, and collaborated on designing intelligent solutions through hands-on prompting and tool-chain integration.

## Area of Interest

Real Time Operating Systems | Artificial Intelligence | Linux Kernel | Industrial Internet of Things

## Projects

### LINUX KERNEL VULNERABILITIES [Github - Linux Vulnerabilities](#)

- Implemented and tested Linux kernel vulnerabilities including Integer Overflow, Stack Buffer Overflow, and Write-What-Where on 32-bit and 64-bit systems; conducted in-depth performance bench-marking before and after applying secure mitigation's.
- Engineered vulnerability-specific C programs and kernel modules to simulate exploitation scenarios, followed by secure patching, documentation, and bench-marking to enhance system resilience and performance understanding.

### TIMELY MEDICINE REMINDER SYSTEM USING RTOS | [Github - Medicine Remainder System](#)

- Developed a real-time medicine reminder using FreeRTOS on ESP32, integrating an OLED display, RTC module, and input buttons for scheduling doses.
- Implemented priority-based task scheduling and buzzer alerts to ensure timely medicine intake with user-settable reminders and queue display functionality.

### ELECTRIC TRICYCLE DESIGN FOR SMART AND SUSTAINABLE SHORT-DISTANCE MOBILITY

- Developed and prototyped an electric tricycle with enhanced structural design and load-carrying efficiency for short-range logistics, focusing on urban and industrial use cases.
- Integrated functional and aesthetic improvements to improve utility, stability, and usability, aligning with sustainable transport goals and user-centered design principles.

## Achievements & Certifications

- **TATA Group – Artificial Intelligence Virtual Experience Program | Forage (Online) | June 2025** – Completed a simulation-based internship covering AI use cases in manufacturing, data analysis, and model deployment. Gained hands-on skills in Python, ML workflows, and industry problem-solving.
- **SocialEagle.ai – 3 Day AI Upskill Challenge | Online | June 2025** – Completed an intensive 3-day AI challenge covering core concepts in artificial intelligence, machine learning workflows, and real-world application strategies, guided by expert mentors from SocialEagle.ai.
- **NVIDIA – Disaster Risk Monitoring Using Satellite Imagery | Deep Learning Institute (Online) | April 2025** – Applied deep learning to satellite imagery for disaster risk analysis, completing NVIDIA-certified training focused on geospatial data interpretation and AI model deployment for real-world disaster monitoring scenarios.
- **OneRoadmap – AI Engineer Skill Certification | Online | June 2025** – Successfully passed the OneRoadmap Skill Certification Test for AI Engineers, validating core competencies in artificial intelligence, machine learning fundamentals, and applied AI problem-solving. Certified by the CEO & Founder, Gaurav Ghai.

## Education

PSG College of Technology - M.E Embedded and Real-Time Systems (CGPA : 8.37\*)

August 2024 - Current

St. Joseph's College of Engineering - B.E Electrical and Electronics Engineering (CGPA : 8.47)

August 2020 - July 2024