Nithin Jupudi

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Education

Master's in Embedded and Cyber-Physical Systems (AI/ML) **Sep 2024 – Dec 2025**
University of California, Irvine *Irvine, California*
CGPA: 3.942

B.Tech in Electronics and Communication Engineering (Minor: Computing) **Oct 2020 – May 2024**
Manipal Institute of Technology *Manipal, Karnataka*
CGPA: 8.33

Certifications

AWS Certified Cloud Practitioner **Issued Oct 2025 – Expires Oct 2028**
Amazon Web Services (AWS) *Credential ID: 1c96147a-d7ee-47a5-a261-cfe354b7c608*

Junior Cybersecurity Analyst Career Path **Issued Jun 2025**
Cisco

CompTIA Security+ **In Progress (Expected within a month of application)**
CompTIA

Relevant Coursework

AI & Programming: Data Structures, Deep Learning & AI, Machine Learning and Data Mining, Applied Linear Algebra, Natural Language Processing (NLP)
Cybersecurity: Cyber Threat Intelligence and Incident Response , Digital Forensics, Network Security , Applied Cryptography

Technical Skills

Languages: Embedded C, C++, Python, System C, ARM7 Assembly, MATLAB, Verilog, SQL, HTML, CSS, JavaScript
Developer Tools: VS Code, Jupyter, Google Colab, ROS, LTspice, PSpice, Qualnet, MS Office
Cybersecurity Tools: Splunk SOAR, Abnormal AI, CrowdStrike Falcon, Magnet AXIOM, KAPE, MITRE ATT&CK Framework, Tenable/Nessus
AI/ML Frameworks: LangChain, NumPy, Pandas, Scikit-learn, OpenCV, TensorFlow, PyTorch, Hugging Face Transformers
Platform Engineering & MLOps: Docker, Kubernetes, FastAPI, GitHub Actions, pytest, MLflow, Azure, AWS
Operating Systems: Linux, Windows, macOS

Experience

Tenet Healthcare Corporation **Jun 2025 – Dec 2025**
Cybersecurity Intern – Incident Response (IR) team *Addison, Texas*

- Assisted and analyzed **80+ EOIs** using CrowdStrike Falcon and Abnormal AI (ATO alerts) to build incident timelines.
- Built **3 master playbooks** to speed up triage across IR workflows.
- Developed a **prototype IR chatbot** with **Python workflows and LLMs** to automate basic investigation steps and cut manual time.
- Worked on **two quarterly threat hunts** reviewing **1,400+ external-facing websites**; analyzed **Tenable ESXi/vCenter** scans for high-risk, **RCE vulns**, OpenSLP **port 427** exposure, and flagged unscanned or filtered hosts.
- Ran an internal **SOC** project simulating **Atomic Red Team** techniques, tuning **Splunk detections**, logging patch gaps, and testing **CrowdStrike Falcon Forensics Collector** (FFC).
- Reviewed **H-ISAC and OSINT** reports to track **TTPs** and **IOCs** and turn them into hunts and detections.
- Led **3 company-wide security awareness sessions** across departments.

Synaptics Inc. **Mar 2025 – Dec 2025**
Capstone Project – Industry Sponsored *Hybrid: UC Irvine / San Jose, California*

- Built an **AI-based embedded C driver generation system** for Synaptics' **Astra.io platform** that converts natural-language requests into compilable hardware drivers, reducing development time by **˜90%**.
- Designed a **hybrid code generation architecture** combining deterministic protocol templates with **LLM-generated logic**, supporting **6+ peripheral classes** (GPIO, I2C, Timers, IRQ, FIFO, CRC, MCU control) while preserving hardware correctness.
- Implemented **automated register-level validation** against **100% of JSON hardware schemas**, detecting invalid bitfields, offsets, and access patterns prior to compilation.

- Developed a **Python-based CLI tool** with interactive and batch modes, local **LLM inference via Ollama**, modular parsing, prompt construction, code cleanup, and optimization stages for production use.
- Delivered the system in collaboration with **Synaptics engineering teams**; selected for **internal AI conference presentation** and planned integration into a future **Synaptics software release**.

Projects

AI Healthcare Bootcamp – Predictive ICU Monitoring | *Python, scikit-learn, Boost-III* **Jul 2025 – Dec 2025**
- Part of a **multidisciplinary team** of clinicians, product managers, and engineers designing AI-driven interventions based on the **Boost-III protocol** (ICP, CPP, $PbtO_2$).
- Built early-warning models to flag neurological deterioration using vitals and waveform data via **Python pipelines and scikit-learn**.
- Worked on integrating predictions into bedside monitoring systems without disrupting ICU workflow.
- Collaborating with product leads to prepare for **real-world deployment and feedback cycles**.

SWRAU-Net: Atherosclerosis Detection | *Deep Learning, Medical Imaging* **Dec 2023 – May 2024**
- Built a novel **Shearlet-Wavelet Residual Attention U-Net (SWRAU-Net)** to segment carotid artery vessel walls in 3D MRI.
- Achieved **Dice score of 0.77** and **Sensitivity of 0.83**, outperforming existing segmentation methods.
- Published in **SN Computer Science** (Springer), 2026, DOI: 10.1007/s42979-025-04535-8

Leadership and Involvement

Red Cross Club – UC Irvine **Jan 2025 – Dec 2025**
Volunteer *Irvine, California*
- Volunteered at the **Red Cross Club desk** during campus resource drives and supported event coordination.
- Participated in the **Campus Blood Drive** check-ins and helped manage donor flow during the event.
- Took part in **Newport Beach Pier Cleanup** and regular campus beautification initiatives.

Alumni Guest Talk on "Cybersecurity – Digital Forensics" – MIT, Manipal **Feb 2024**
Master of Ceremony *Manipal, Karnataka*
- Hosted and coordinated a guest session on Cybersecurity Operations and Digital Forensics for 150+ students and professionals from the field.
- Handled speaker introductions, audience interaction, and technical setup during the session.
- Gained skills in **public speaking, event planning**, and technical communication.

RedX – MIT, Manipal **2021 – 2024**
Core Team Member *Manipal, Karnataka*
- Planned and led bi-quarterly weekend hikes for club members and local students.
- Managed sign-ups, route scouting, and safety logistics for outdoor group activities.