NITHIN JUPUDI

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Education

Master's in Embedded and Cyber-Physical Systems　　　　**Sep 2024 – Dec 2025**
University of California, Irvine　　　　*Irvine, California*
CGPA: 4.0

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

Relevant Coursework

AI & Programming: Data Structures, Deep Learning & AI, Machine Learning and Data Mining, Applied Linear Algebra, Natural Language Processing (NLP)
Embedded & IoT: Embedded Systems Modeling and Design, IoT, Parallel Programming, Computer Architecture, Wireless Sensor Networks, Robotic Operating Systems (ROS)
Cybersecurity: Cyber Threat Intelligence and Incident Response , Digital Forensics, Network Security , Applied Cryptography

Experience

Tenet Healthcare Corporation　　　　**Jun 2025 – Present**
Cybersecurity Intern – Incident Response (IR) team　　　　*Addison, Texas*
- Worked on assisting and analyzing **40+ Events of Interest (EOIs)** using CS Falcon and Abnormal AI to review incident timelines.
- Built **3 master playbooks** to standardize and speed up the triage process across IR team workflows.
- Developed a **prototype IR chatbot** using **Python workflows and LLM integration** to automate basic investigation steps and reduce manual triage time.
- Conducted a proactive threat hunt by reviewing **1,400+ external-facing websites** to identify exposure risks and potential vulnerabilities.
- Led **3 company-wide cybersecurity awareness sessions**, promoting secure practices across departments.

Synaptics Inc.　　　　**Mar 2025 – Present**
Capstone Project – Industry Sponsored　　　　*Hybrid: UC Irvine / San Jose, California*
- Developed **GPIO drivers** for **8+** protocol variants on embedded chips used in production hardware.
- Built a **WaveDrom + LLM toolchain** to auto-generate timing/code diagrams with **90%** accuracy.
- Implemented a **RAG architecture** with **FAISS** and sentence-transformers to pull prior bus specs and examples into the prompt, boosting exact-match diagram accuracy from **62%** to **90%**
- Integrated **telemetry modules** to enable real-time waveform monitoring and debugging insights.

Centillion Networks　　　　**Jun 2023 – Sep 2023**
Project Intern　　　　*Hyderabad, Telangana*
- Built a secure **login page with multi-factor authentication** for access control.
- Developed a **Web GIS system** used by **200+** engineers for spatial mapping and analysis.
- Utilized **CAD tools** for analyzing network pole layouts and deployment efficiency.

Projects

AI Healthcare Bootcamp – Predictive ICU Monitoring | *Python, scikit-learn, Boost-III*　　**Jul 2025 – Present**
- 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.

Patient Health Monitoring System | *Raspberry Pi 5, Edge AI, Sensor Integration* **Feb 2023 – Apr 2023**
- Built a real-time vitals monitoring system using **Raspberry Pi 5** with cloud-based data syncing.
- Integrated **temperature and BP sensors**, triggering alerts for abnormal readings.
- Deployed a **lightweight deep learning model** for anomaly detection with 90%+ accuracy.

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
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

Leadership and Involvement

Red Cross Club – UC Irvine **Jan 2025 – Present**
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.