

Mithul Pranav

+91 8072017431 | mithulpranav24826@gmail.com | [linkedin](#) | [github](#)

EDUCATION

Amrita Vishwa Vidyapeetham

Bachelor of Technology in Computer Science and Engineering (AI) – CGPA: 8.54/10

Coimbatore, India

July 2024 – July 2028

PROJECTS

Smart Grid Cybersecurity against MiTM Threats | Python, Machine Learning

Dec 2024 - April 2025

- Developed an ML-based Intrusion Detection System (ML-IDS) achieving 99.8% accuracy in classifying Man-in-the-Middle attacks within SCADA environments.
- Implemented real-time multiclass attack classification on edge hardware accelerators, including PYNQ Z2 and Google Coral, with inference times under 4 seconds.
- Integrated AES-GCM and Salsa20 cryptographic schemes to secure control and data flows, ensuring resistance against unauthorized tampering and brute-force attempts.

Dual-Perception Reconnaissance UGV | Raspberry Pi 5, ESP32, Python, Radar

Nov 2025 - Mar 2026

- Engineered an unmanned ground vehicle for disaster recovery featuring a dual-perception stack consisting of live video streaming and radar-based detection.
- Utilized an HLK-2410C radar module to detect human presence through physical obstacles, providing critical situational awareness in post-disaster environments.
- Configured long-range telemetry and data streaming using LoRa protocols to maintain stable communication between the UGV and base station in low-bandwidth areas.

Breast Vascularity Detection | PyTorch, ResNet-34, Deep Learning

June 2025 - Oct 2025

- Architected a deep learning pipeline using ResNet-34 to automate the segmentation and analysis of vascular patterns in medical imaging.
- Designed a custom thin-thick vessel decoder to enhance the resolution of intricate vascular structures, improving the accuracy of early detection models.
- Applied Gaussian blur and sharpness map preprocessing techniques to normalize variable imaging conditions and optimize feature extraction for the neural network.

Automated Animal Deterrence System | ResNet50, Freesound API, Python

Nov 2025 - Mar 2026

- Created an AI-powered deterrence system that identifies animals in real-time using a ResNet50 computer vision model with specialized detection weights.
- Automated an audio deterrent response by integrating the Freesound API to trigger specific frequencies tailored to the species of the detected animal.
- Deployed the solution on edge computing hardware to provide an autonomous, low-latency alternative to physical fencing in agricultural environments.

PUBLICATIONS

Smart Grid Cybersecurity against Power System MiTM Threats

June 2026

M. Mithul Pranav, et al.

Energy Reports (Elsevier), Volume 15

- Proposed a multi-layered framework integrating machine learning-based intrusion detection with robust cryptographic protection for industrial SCADA networks.

TECHNICAL SKILLS

Languages: Python, Java, C/C++, Bash, PowerShell, MATLAB, CMD

AI & Machine Learning: PyTorch, TensorFlow, OpenCV, Ollama, LM Studio, pandas, scikit-learn

Frameworks: FastAPI, Flask, Firebase, n8n

Cloud & DevOps: Google Cloud Platform, AWS, Cloudflare, Docker, Kubernetes, Terraform, OpenTofu, Ansible