

NAVEENA S

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PROFESSIONAL SUMMARY

Final-year Electrical & Electronics Engineering student (AI & ML minor) seeking to build and deploy AI/ML systems that solve high-stakes business problems. Experienced across the full analytics lifecycle — translating ambiguous, cross-domain problems into structured AI-solvable statements, building and evaluating ML/DL models (classical ML, CNNs, RNNs, ensemble methods) on real-world signal and image data, and communicating findings to both technical and non-technical stakeholders. Comfortable with rapid experimentation, structured problem decomposition, and quickly adopting new tools and frameworks.

EDUCATION

B.Tech – Electrical and Electronics Engineering (Minor: AI & ML)

Expected 2027

Amrita Vishwa Vidyapeetham, Coimbatore

TECHNICAL SKILLS

- **AI/ML & Deep Learning:** Machine Learning, Deep Learning, Neural Networks (CNN, RNN), Random Forest, SVM, KNN, XGBoost, CatBoost, Transfer Learning
- **Computer Vision:** OpenCV, handcrafted feature extraction (GLCM, LBP, HOG, HSV, Canny), CNN architectures (ResNet50, VGG16, AlexNet), image-based fault/defect classification
- **Programming & DSA:** Python, C, C++; Data Structures (Arrays, Trees, Hashmaps, Heaps, Graphs), Algorithms (Dynamic Programming, Sorting/Searching, Graph Traversal)
- **Data & Analytics:** Exploratory Data Analysis, Feature Engineering, PCA, Hypothesis Testing, Statistical Inference, Comparative Model Evaluation
- **Frameworks & Tools:** TensorFlow, PyTorch, Scikit-learn, NumPy, Pandas, Jupyter Notebook, MATLAB, Signal Processing
- **Practices:** Structured problem framing, technical documentation, cross-functional collaboration, stakeholder communication, fast adoption of new tools/frameworks

PROFESSIONAL EXPERIENCE

Live-in-Labs® Fellowship – Community Water Systems [\[Research Paper\]](#)

2024 – 2025

Amrita Vishwa Vidyapeetham, Coimbatore

- **Collected, cleaned, and pre-processed field data; performed EDA** to identify patterns and anomalies, translating field-level domain knowledge into structured, data-driven problem statements.
- **Collaborated with multidisciplinary teams and communicated methodologies and findings** through technical reports and presentations, framing complex, cross-domain challenges for both technical and non-technical stakeholders.

Industrial Internship – EV Technologies [\[Certificate\]](#)

June 2026

L&T, Ramapuram, Chennai

- **Modeled and analyzed real-time monitoring data (SOC, SOH, voltage/temperature)** via dashboard analytics to assess prototype performance, gaining hands-on exposure to industrial automation and data-driven decision-making practices in an enterprise setting.

Signal and Telecommunication Workshop [\[Certificate\]](#) [\[Project Report\]](#)

April – May 2026

Southern Railways, Podanur

- **Designed and implemented a secure ESP32-based wireless audio control system**, integrating a 4×4 keypad with AXIS IP network audio devices over Wi-Fi using HTTP Digest Authentication for authenticated command transmission.

AI & MACHINE LEARNING PROJECTS

Dual Pipeline ML–DL Framework for Transmission Line Fault Classification

Computer Vision

- **Built an automated fault detection and comparative-evaluation pipeline on the InsPLAD dataset (11 defect classes)**, benchmarking handcrafted features (GLCM, LBP, HOG, HSV, Canny) against deep-learned features.
- **Trained and evaluated 7 architectures (Random Forest, SVM, KNN, ResNet50, VGG16, AlexNet) across accuracy, precision, recall, and F1-score** to identify the most deployment-ready model for a real-world enterprise inspection use case.

Inter-Turn Fault Diagnosis in Inverter-Fed Induction Motors

Co-authored Research Paper

- **Applied Multivariate Variational Mode Decomposition (MVMD) for multichannel signal preprocessing and engineered 42 statistical features** (RMS, kurtosis, skewness, energy) from fault-sensitive frequency bands.
- **Performed EDA and PCA-based feature analysis; trained and compared ensemble classifiers (XGBoost, Extra Trees, CatBoost) with 5-fold stratified cross-validation**, achieving 85.93% test accuracy — informing early-stage predictive-maintenance decisions with clear business relevance.

Radar Signal Classification Using Machine Learning and Deep Learning

Co-authored Research Paper

- **Compared classical ML and deep learning approaches for sequential signal classification**; RNN reached 97% accuracy and CNN 95%, guiding model-selection recommendations for sequential classification tasks.

IGBT Aging Prediction and Reliability Analysis

- **Performed data preprocessing, feature engineering, and correlation analysis on electrical parameter datasets**; built models for early-stage IGBT degradation detection (89.5% accuracy) and estimated Remaining Useful Life (RUL) for predictive maintenance.

EXTRACURRICULAR

- **Secretary, Art Club (2025–2026)**
- **Commissioned Artist** — undertakes commissioned acrylic artworks.