SIDHARDH S

AI / ML ENGINEER • RESEARCHER • FULL-STACK BUILDER

Kottayam, India | +91 62824 90564 | sidhardh215@gmail.com | LinkedIn | GitHub

SUMMARY

Final-year Integrated M.Tech (Software Engineering) student at VIT-AP specializing in Machine Learning, Deep Learning, and Generative AI. Top 10 Finalist at Epsilon TeXpedition (flagship campus hackathon). Co-author of an IEEE-targeted paper on heterogeneous graph neural networks (HeteroRisk: HGT + Mamba SSM + Zero-Inflated Tweedie) and lead researcher on IndoSmish, a code-mixed Indian-language phishing-detection benchmark using quantized LLMs. Comfortable across the full ML stack — dataset engineering, model design, evaluation, ablation, and deployment — and seeking an AI/ML internship to ship research-grade work in industry.

EDUCATION

Vellore Institute of Technology, Andhra Pradesh (VIT-AP) *Expected 2027*

Integrated M.Tech in Computer Science with Software Engineering

Relevant Coursework: Machine Learning, Deep Learning, Probability & Statistics, Linear Algebra, Data Structures & Algorithms, Database Systems, Cloud Computing, Software Quality & Reliability.

TECHNICAL SKILLS

Languages: Python, JavaScript, SQL, Java, C/C++

ML / DL: PyTorch, PyTorch Geometric, TensorFlow, scikit-learn, XGBoost, NumPy, Pandas, Matplotlib, Seaborn

GenAI / LLMs: Hugging Face Transformers, Quantized LLMs (4-bit: Phi-3-mini, Gemma-2, Qwen-2.5), Prompt Engineering, RAG, MuRIL / IndicBERT, Gemini API

Backend & Web: Node.js, Express.js, FastAPI, REST APIs, WebSockets, JWT, HTML/CSS, React (basics)

Data & Infra: PostgreSQL, MongoDB, MongoDB Atlas, AWS (basics), Firebase, Git/GitHub, Docker, Jupyter, Kaggle

ML Concepts: Graph Neural Networks, State Space Models (Mamba), Transformers, Attention, Uplift Modeling, Probabilistic Modeling, Quantization, Adversarial Robustness, Explainable AI

RESEARCH & PUBLICATIONS

HeteroRisk: HGT + Mamba SSM + Zero-Inflated Tweedie for Crash Risk Prediction *Submitted — IEEE T-ITS*

- Designed a novel architecture combining a Heterogeneous Graph Transformer (4 node types, 5 typed edge relations), a Mamba selective state space model for linear-complexity temporal memory, and a Zero-Inflated Tweedie output head — first known integration of all three.
- Built a road-safety graph from 175K California crash records and 27,615 OSM road segments; achieved MAE = 0.0261 and F1 = 1.000 — a 58% MAE reduction over a homogeneous GAT+GRU baseline, validated via component ablation and gradient-based counterfactual policy explanations.

IndoSmish: Code-Mixed SMS Phishing Detection with Quantized LLMs *Capstone — In Progress*

- Building the first multilingual code-mixed smishing benchmark for Indian languages (~3,000 examples across Hinglish, Manglish, Tanglish, Bengali, English) covering UPI scam categories.
- Benchmarking 4-bit quantized LLMs (Phi-3-mini, Gemma-2, Qwen-2.5) against classical baselines and Indic encoders (MuRIL, IndicBERT) with an adversarial-robustness study and edge-deployment profiling. Target venues: ACSAC 2026, KDD Applied Track 2026.

ACHIEVEMENTS

- **Top 10 Finalist & Top-Tier Hacker — TeXpedition, Epsilon's Flagship Campus Hackathon (Bangalore):** Recognized as a Top 10 Finalist among competing campus teams; built "Foresight", a journey-intelligence simulator for uplift model validation with a T-learner/S-learner engine, FastAPI backend, and React + TypeScript + Recharts frontend with Gemini API integration.

EXPERIENCE

Artificial Intelligence Intern — CodSoft (Remote) *Dec 2023 – Jan 2024*

- Built an image-recognition pipeline in Python with OpenCV and pre-trained CNNs for multi-class classification — preprocessing, augmentation, inference, and evaluation (accuracy, precision, recall).

Artificial Intelligence Intern — FlyRank AI (Remote) *Jan 2024*

- Worked on AI-driven product features — contributing to model integration, data pipelines, and feature development within the platform's ML workflow.

PROJECTS

Blockchain-Based Biometric Healthcare System *Team Project*

Stack: Solidity, Ethereum/Hyperledger Fabric, IPFS, Node.js, Express, MongoDB Atlas, OpenCV, JWT, AES-256, React.

- Built a tamper-proof EHR system: records hashed/anchored on-chain via smart contracts with encrypted payloads on IPFS; biometric auth (face + fingerprint) storing only irreversible templates; role-based access over JWT REST APIs with ~1.2–1.8s login latency.

ClipBridge — Cross-Device Clipboard Platform *Academic Project*

Stack: Node.js, Express.js, WebSockets, PostgreSQL, JWT, bcrypt, Jest, Supertest, Cypress.

- Built a zero-install clipboard-sharing platform with a 4-digit ID system; real-time WebSocket delivery at 42ms median latency (p95: 118ms) and an automated test suite reaching 87% statement coverage.

Symptom-Based Disease Prediction System *Academic Project*

Stack: Python, scikit-learn, XGBoost, Pandas, NumPy.

- Built a multi-class system mapping 132 symptoms to 41 diseases over 4,920 samples; trained and compared 6 classifiers (KNN, GNB, SVM, Decision Tree, Random Forest, XGBoost) with cross-validation and hyperparameter tuning.

CERTIFICATIONS

Agentic AI
DeepLearning.AI · Issued Apr 2025

Spec-Driven Development with Coding Agents
DeepLearning.AI · Issued May 2026