

# Tharun C

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## Profile

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Final-year B.Tech (AI & Machine Learning) undergrad who builds complete ML systems and ships them as real products – from fine-tuning transformer models and designing training pipelines, to deploying them behind REST APIs and full-stack applications end-to-end. Comfortable across the stack: model training/evaluation, backend/API design, databases, and frontend (web + mobile). Strong communicator, experienced in Agile, cross-functional teams from prototype to production.

## Skills

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**AI/ML:** PyTorch, HuggingFace Transformers, Scikit-Learn, CodeBERT Fine-Tuning, ONNX, Prompt Engineering, Drift Detection

**Languages:** Python, JavaScript, TypeScript, Java, SQL

**Backend/APIs:** FastAPI, Node.js, Express, REST APIs, Firebase Admin SDK

**Databases:** PostgreSQL (SQL), Firebase/Firestore (NoSQL)

**Frontend:** React, React Native (Expo), Next.js, Tailwind CSS

**Tools:** Git, GitHub Actions (CI/CD), AWS, Agile/Scrum

## Projects

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**Tripzo** – *AI-Powered Ride Booking Platform* — React Native, Node.js, FastAPI, Scikit-Learn, PostgreSQL

Jan 2026 – Feb 2026

GitHub ↗

- Built a full-stack ride-hailing app (Expo + Node.js/Express + PostgreSQL/NeonDB) with a Scikit-Learn fare-prediction microservice trained on 7 real-world factors, replacing static pricing with live, context-aware fares.
- Integrated Razorpay (signature-verified payments), Clerk auth, and 4 Google Maps APIs for live distance/traffic/weather, with a transparent breakdown engine (surge up to 2.0x, confidence score).

**InterviewX** – *AI Voice-Driven Mock Interview Platform* — Next.js, Gemini API, Deepgram, Firebase

Mar 2026 – Apr 2026

GitHub ↗

- Built a voice-driven mock interview platform (Next.js 15) generating on-demand questions via Gemini 2.5 Flash, with per-user data isolation via a 3-collection Firestore schema secured by HTTP-only sessions.
- Built a resilient voice pipeline (Deepgram STT → Gemini → TTS) that sanitizes malformed LLM JSON and falls back gracefully on AI failure.

**AutoHeal** – *Self-Healing ML Pipeline with Automated Drift Detection* — Python, Scikit-Learn, Pandas, Matplotlib

May 2026

GitHub ↗

- Co-built an autonomous MLOps pipeline that automatically detected concept drift and triggered retraining when rolling accuracy fell to 33.6% (avg. across 5 runs, from a 96.7% clean baseline), recovering accuracy to 81.6% with zero manual intervention.
- Designed the baseline comparison framework and led statistical analysis across runs, showing AutoHeal (40% accuracy during drift) outperforming scheduled retraining (36%) and no-monitoring (27%) baselines; built the full visualization suite to communicate results.

**Neural Vulnerability Detector** – *Fine-Tuned CodeBERT for Security Analysis* — Python, PyTorch, FastAPI, ONNX, CUDA

Jun 2026

GitHub ↗

- Fine-tuned a 124M-parameter CodeBERT transformer on 190,000+ CVE functions (BigVul), achieving F1 0.782 (recall 0.722, precision 0.853) while fixing a 16:1 class imbalance with weighted loss and threshold tuning.
- Cut inference to 250ms via ONNX export and shipped it 3 ways: a FastAPI server, a GitHub Action auto-commenting CWE issues on PRs, and a VS Code extension.

## Certifications

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- **Foundations of Deep Learning: Concepts and Applications** – NPTEL (IIT/IISc, Govt. of India), Elite, 82% (2026)
- **AWS Academy Graduate – Cloud Foundations** (2025)
- **IBM SkillsBuild – Cloud Computing Fundamentals** (2025)

## Education

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**B.Tech in Artificial Intelligence & Machine Learning**

Dayananda Sagar University

Expected 2027  
Bengaluru, India

**Relevant Coursework:** Data Structures & Algorithms, Operating Systems, Database Management Systems, Computer Networks, Machine Learning, Deep Learning