

Madhav Kannan K

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Objective

Data Science graduate student specializing in Machine Learning, Computer Vision, Deep Learning, and GenAI. Experienced in developing end-to-end ML applications, including data preprocessing, transfer learning with EfficientNet-B4, CUDA-accelerated training using PyTorch, and model evaluation using mAP and F1-score. Strong foundation in classical machine learning and software engineering, with a focus on building practical, reproducible, and reliable AI systems.

Education

Coimbatore Institute of Technology, MSc Data Science | 2024 - 2029 | CGPA : 7.95

PKD Matric Higher secondary School, Pollachi, Higher secondary | 2024 | 85%

Skills and Tools

Languages: Python, SQL, C++

Machine Learning & AI: XGBoost, PyTorch, scikit-learn, SHAP, Computer Vision

Data & Databases: MySQL, MongoDB, Firebase (Realtime Database, Authentication), Supabase

Backend & APIs: FastAPI, REST APIs, Node.js, WebSockets

Frontend: React, Vite, HTML5, CSS3, Tailwind CSS

Tools & Systems: Java Swing, MVC Architecture, JDBC, Docker, Git, GitHub

Projects

GUIDO - Genomic Unified Intelligence for Disease Oncology

- Currently developing an end-to-end multi-omics disease risk platform across 13 TCGA cancer cohorts, combining regularized XGBoost with leak-free SHAP stability scoring on RNA-seq data. Engineering an automated 10-stage Biomedical AI Audit pairing NCBI Entrez literature retrieval with Groq LPU (Llama 3 70B) for zero-hallucination evidence validation, served via FastAPI and an interactive React/Vite dashboard.

Tech Stack: Python, XGBoost, SHAP, Groq LPU (Llama 3 70B), Biopython, FastAPI, React, Docker

KCI - Kandhari Construction Intelligence

- Built an infrastructure defect detection platform across 975 benchmark bridge images (dacl10k), combining an FPN segmentation architecture with an EfficientNet-B4 backbone achieving 42.15% mIoU. Engineered an automated structural audit pipeline pairing a deterministic AASHTO-informed risk scoring engine with defect-prioritization logic for explainable condition assessment, served via FastAPI and an interactive React dashboard with automated PDF reports.

Tech Stack: Python, PyTorch, FPN, OpenCV, FastAPI, React, Vite, Google Gemini API, PyMuPDF

Jarvis Jr

- Developed an autonomous, multimodal desktop AI assistant for Windows and Linux featuring sub-second neural voice interaction, an 18-class semantic intent dispatcher, deterministic SymPy symbolic mathematics with natural spoken phonetics, and vision guided GUI/hardware automation with risk-gated task orchestration. Implemented multilingual STT/TTS supporting English, Tamil, and Malayalam with adaptive script-based neural voice routing.

Tech Stack: Python, Groq LPU, openWakeWord, SymPy, Edge-TTS, OpenCV, PyAutoGUI, ONNX Runtime, DirectShow

Leadership Experience

Joint Secretary, FOSS CIT | 2026 - Present

- Orchestrate core operations, event logistics, and technical initiatives for one of the largest active open-source student chapters. Drive student engagement in regional FOSS initiatives, mentoring peers on version control standards, code reviews, and open source licensing.

Technical Team Member, FOSS CIT | 2025 - 2026

• Event Lead – I'M GOING INN (IGI)

Led FOSS-CIT's first completely automated end-to-end technical event, a two-day story-driven web application challenge with 100+ participants. Managed the core team, structured multi-round challenges and evaluation, and oversaw on-ground operations to ensure smooth execution and participant engagement.

• Event Lead – Nakshathra 2026

Planned the flow of Nakshathra - an intra college event for students of 2nd Semester, where as a part of Core team of leads, organised 4 multiple events on a single day to increase the popularity of the FOSS communities among the students.

Core Competencies

Leadership | Stack-agnostic | Critical Thinking | Teamwork & Collaboration | Event Coordination | Strategic prioritization

Courses

The Complete Data Structures And Algorithm in python, Udemy

Mathematical Foundation of Machine Learning, IISc (NPTEL) | 68%