

AMIT ANIL KAMBLE

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Education

IIITDM, Kancheepuram

B.Tech in Computer Science and Engineering (AI Major)

2023 – 2027

Chennai, India

- **Relevant Coursework:** Data Structures, Algorithms, Machine Learning, Deep Learning, Digital Image Processing

Experience

AI Intern — AICTE–Shell–Edunet

Jun 2025 – Jul 2025

Artificial Intelligence Internship

- Built a **multi-output Random Forest pipeline** to predict 9 water quality indicators from environmental monitoring data across 22 stations.
- Performed EDA and feature engineering on **2,861 records** using correlation analysis and visualization techniques to improve model reliability.
- Evaluated regression performance using **R^2** and MSE metrics, and deployed results through an interactive **Streamlit** interface.

Projects

Research Agent | *LangGraph, Pinecone, FastAPI, Streamlit*

GitHub | Demo

- * Developed an autonomous research agent using **LangGraph** with planning, reflection, and validation loops for iterative query refinement.
- * Integrated **DuckDuckGo search**, **Python REPL execution**, and Pinecone vector memory to automate financial and market research workflows.
- * Deployed a **Streamlit** interface with structured JSON outputs and **FastAPI** endpoints for real-time interaction and response delivery.

SanitiSense AI | *AWS Bedrock, Rekognition, RAG, Lambda*

GitHub | Demo

- * Developed a **multimodal sanitation reporting pipeline** using Amazon Bedrock and Rekognition to classify civic issues from uploaded images.
- * Implemented a **RAG-based advisory workflow** using Bedrock Knowledge Base and Titan embeddings for epidemic-risk insights and report generation.
- * Integrated **AWS Lambda, API Gateway, DynamoDB**, and S3 to support report processing, storage, and AI-based validation workflows.

Bone Age Estimation | *TensorFlow, Xception CNN, OpenCV*

GitHub

- * Trained an **Xception-based CNN** on **12,611 pediatric X-ray images** for automated bone age prediction using transfer learning.
- * Improved regression performance to **$R^2 = 0.9169$** and **MAE = 9.04 months** using mixed-precision training and optimized preprocessing.
- * Evaluated gender bias and model interpretability through **Grad-CAM visualizations** and subgroup performance analysis.

Skills

Languages: Python, JavaScript, TypeScript, C++

Backend / APIs: FastAPI, Node.js, REST APIs, AWS Lambda

Software Engineering: OOP, Data Structures, Version Control, Git, System Design

Data / ML: PyTorch, TensorFlow, Scikit-Learn, Pandas, NumPy

Tools: LangGraph, Pinecone, HuggingFace, AWS, OpenCV, SQL

Achievements

- Secured **2nd Place** in the AI/ML Hackathon 2026 conducted by IIITDM Kancheepuram
- Technical Team Volunteer — ICPC Asia Regional Contest (Dec 2025)