

Midhun G Raj

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Thiruvananthapuram, Kerala, India

Summary

Physics undergraduate focused on machine learning, deep learning, computer vision, and applied AI systems. Hands-on experience building ML pipelines, real-time voice systems, and AI-powered video analysis applications using PyTorch, computer vision, and local LLM inference.

Education

Mahatma Gandhi (M.G.) College, Thiruvananthapuram **2024 – 2027**
B.Sc. Physics (FYUGP), University of Kerala

GVHSS Nedumangadu, Mancha **2020 – 2022**
Field Technician – Computing & Peripherals

Experience

HashRaft Private Limited **April 2026 – May 2026**
AI Engineer Intern — Bengaluru

- Developed Dissection, an AI-powered surgical video analysis platform using Computer Vision, VLMs, and audio transcription.
- Built asynchronous Django REST APIs for video processing, job tracking, and report generation.
- Implemented keyframe extraction with FFmpeg, pHash, and HDBSCAN, integrating faster-whisper and MedGemma.

Projects

AI Voice Receptionist *Python, Ollama*

- Built a real-time AI voice agent designed for clinics and small businesses.

Deep-Face-Net *PyTorch, OpenCV*

- Built a real-time face-swapping system using computer vision and deep learning.

CurioStack *LangChain, RAG*

- Built a web crawling and retrieval system with embedding generation and retrieval-augmented generation.

Paper Replications *PyTorch*

- Reimplemented AlexNet and ResNet from scratch to study deep learning architectures and training procedures.

Additional Projects: InceptionV3 Image Classifier, FashionMNIST-CGAN, GAN Experiments, SmartSearchQA

Technical Skills

- Programming:** Python, C/C++ (Basic), Bash
- Machine Learning:** Regression, Classification, Regularization, Feature Engineering, Model Evaluation
- Deep Learning:** Neural Networks, CNNs, GANs, Backpropagation, Optimization, Transfer Learning
- Computer Vision:** OpenCV, Face Detection, Facial Landmarks, Face Alignment, DeepFace, InsightFace
- Speech & LLMs:** faster-whisper, Silero VAD, Piper TTS, Ollama, Local LLM Inference
- Frameworks:** PyTorch, scikit-learn, NumPy, Pandas, Django REST Framework, Celery
- Tools:** Git, Linux, Docker, Matplotlib
- Mathematics:** Linear Algebra, Probability, Statistics, Calculus

Certifications

- Deep Learning Onramp** – MathWorks
- MATLAB Onramp** – MathWorks
- Python (Basic)** – HackerRank
- Ethical Hacking Certificate of Completion** – Avodha

Languages

English, Hindi, Russian, Malayalam (Native)