Manash Ranjan Nayak

AI Researcher — Machine Learning — Computer Vision

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Education

GATE Data Science & AI 2026 (Qualified): Score – 470, AIR – 3475

M.Sc. in Data Science (SGPA: 9.8)	NIST University, Odisha	Sept 2024 – May 2026
B.Sc. Mathematics (CGPA: 8.6)	Berhampur University, Odisha	Sept 2021 – Mar 2024
+2 Science (88%)	Nayagarh Autonomous College, Odisha	2019 – 2021
10th HSC (87%)	Board of Secondary Education, Odisha	2018 – 2019

Experience

IIT Kharagpur — Project Research Assistant *May 2026 – Present*

- Developing an AI-enabled handicraft ecosystem platform under Ministry of Textiles funded Centre of Excellence.
- Building and deploying full-stack services using **React, Next.js, FastAPI backend, and MongoDB**, containerized with **Docker** and delivered via **GitHub Actions CI/CD** pipelines on Linux servers.

Aspire InfoLabs, Hyderabad — Project-Based Collaboration (SDE) *Oct 2025 – Jan 2026*

- Developed a real-time meeting analysis pipeline integrating Vosk for speech-to-text transcription, pyannote.audio for speaker diarization, and LLaMA-3.1 via Groq API for automated summarization.
- Designed an asynchronous processing architecture enabling near real-time transcription and summarization, significantly reducing manual meeting documentation effort.

Academic Projects

ML Pipeline for Medical Imaging (VGG16 + MLOps) GitHub Repository

- Developed an end-to-end medical imaging pipeline for chest cancer classification using **VGG16** pretrained on ImageNet, achieving **75%** accuracy.
- Implemented **data versioning with DVC**, **MLflow** experiment tracking, and reproducible, automated training and validation workflows.
- Containerized the system with **Docker** and deployed on **AWS (EC2, S3)**. Tech stack: Python, TensorFlow/Keras, DVC, MLflow, Docker, AWS

Visa Approval Prediction: End-to-End Project GitHub Repository

- Designed an end-to-end ML pipeline to predict visa approval outcomes; optimized KNN, Random Forest, and XGBoost models via grid search and cross-validation, achieving **96%** accuracy with a strong ROC-AUC score.
- Set up model monitoring and logging to track prediction performance and data drift in production. Tech stack: Python, Scikit-learn, MongoDB, GitHub

AI Resume Analyzer (LLM-Powered) GitHub Repository

- Built an intelligent resume analysis tool using **Google Gemini** to extract structured information, evaluate candidate–role fit, and generate actionable improvement feedback.
- Engineered prompt pipelines for reliable structured (JSON) outputs and integrated the model into an interactive web app. Tech stack: Python, Gemini API

Research Interests

Document Visual Question Answering (DocVQA), Vision-Language Models, Document AI, Multimodal Learning, Trustworthy & Explainable AI, Large Language Models (LLMs), Retrieval-Augmented Generation (RAG)

Skills

AI & Machine Learning: PyTorch, TensorFlow, Scikit-learn, Transformers, Vision Transformers, CNNs, Transfer Learning, LLMs, Prompt Engineering, RAG

Data Science: Pandas, NumPy, Data Analysis, Feature Engineering, Model Evaluation, Data Pipelines

Mathematics: Calculus, Probability and Statistics, Linear Algebra, Linear Programming, Numerical Methods, Differential Equations

MLOps & Cloud: MLflow, DVC, Docker, GitHub Actions, CI/CD, AWS (EC2, S3), Ubuntu Linux

Programming & Web: Python, JavaScript, TypeScript, SQL, Go (basic), React, Next.js, Node.js, Express, MongoDB

Certifications: Data Science Methodology (IBM), Natural Language Processing in Python (Udemy)