

Jyotirmoy Konwar

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Education

- **Rajiv Gandhi Institute of Petroleum Technology** 2022 - 2027
Integrated Dual Degree (B.Tech in Computer Science & M.Tech in AI)

Experience

- **VANET Lab, IIT Jodhpur** May 2025 - July 2025
Research Intern *Jodhpur*
 - Developed a **multi-modal deep learning model** for driver behavior classification, ensuring high robustness against real-world sensor failures and missing data.
 - Engineered a **three-stage training pipeline** with progressive modality dropout, achieving **98% accuracy** with minimal performance degradation 10% drop in single-modality scenarios.
- **Borde** May 2023 - May 2025
MLOps Intern *Remote*
 - Improved data quality for a **120K+ image dataset** by applying preprocessing pipelines including labeling, annotation, augmentation and segmentation using Python and OpenCV.
 - **Fine-tuned and deployed YOLOv5 models on AWS and Azure GPU instances**, improving overall model accuracy by 60% and enhancing precision on low-performing labels by 150%.
- **Speech Lab, IIT Guwahati** May 2024 - July 2024
Research Intern *Guwahati*
 - Worked on Speech Recognition using **Machine Learning (SVM, KNN)** and **Deep Learning (ResNet, MobileNet)** Techniques.
 - Built a GUI-based cluster visualization tool using **MFC in C++** to display audio feature groupings from classification models using **t-SNE**.

Projects


- **Smart Product Pricing Ensemble Model**  October 2025
 - Engineered a high-performance Multi-Modal Architecture to predict product pricing, placing in **rank 30** out of 9k+ teams in **Amazon ML Challenge 2025**.
 - Implemented a dual-stream feature extraction pipeline, leveraging **DeBERTa** and **ELECTRA** for deep semantic analysis of textual data, and **CLIP-ViT** for robust visual feature extraction from product images.
 - Developed a novel fusion mechanism using **attention layers** to dynamically weigh text and image embeddings, and integrated **residual blocks** to stabilize the final prediction head, significantly boosting model accuracy.
- **Agentic Derma Doc RAG Chatbot**  September 2022 - October 2022
 - Developed and deployed an **Agentic Multimodal Medical RAG Chatbot** on **Hugging Face Spaces** using Streamlit, combining a **fine-tuned Swin Transformer** for real-time skin disease classification with a **Retrieval-Augmented Generation (RAG)** pipeline for accurate medical question answering.
 - Fine-tuned and integrated **Gemma3 270M** with HuggingFace, LangChain and ChromaDB to deliver context-aware, retrieval-enhanced medical responses from curated medical documents.

Publications

J. Konwar, S. K. Mishra, "Multi-View Multi-Objective Clustering for Extractive Document Summarization", Manuscript in preparation: Target EACL 2025

P. Saikia, J. Konwar, "Image Deepfake Generation and Detection: Survey", Manuscript in preparation: Target IEEE Transaction 2025

Achievements

- **Ranked 30 in Amazon ML Challenge 2025** all over India. 
- Secured **6th position in Solo Instrumental (Guitar)** at **Antaragni, IIT Kanpur (2024)**.

Skills

- **Programming Languages:** Python, C/C++, Matlab, Bash, SQL, JavaScript, HTML, CSS
- **Areas of Interest:** Machine Learning, AI, Data Science, Deep Learning, NLP, Computer Vision, Generative AI, RAG, MLOps, LLMops, Transformers
- **Libraries & Frameworks:** PyTorch, TensorFlow, Keras, Scikit-learn, OpenCV, Hugging Face, NLTK, LangChain, LangGraph, Librosa, NumPy, Pandas, Matplotlib, Seaborn, MongoDB, PostgreSQL, Power BI
- **MLOps & Deployment:** MLflow, DVC, Apache Airflow, Docker, FastAPI, Flask, Streamlit, Gradio, WandB, ChromaDB, Azure, AWS, Git, VS Code, Jupyter, Linux, Postman, Raspberry Pi, Ollama