

# Mohit Kumar

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## EXPERIENCE

### SHANTOU UNIVERSITY | RESEARCH INTERN

May 2025 – July 2025 | Shantou, China, Remote

- Designed a novel Gated Multi-Domain CUT model to perform efficient X-ray normalization across multiple intensity levels using a single, unified generator.
- Implemented an attention-based architecture and a hybrid contrastive loss to ensure high anatomical fidelity while precisely modulating image style.
- Outperformed established baselines (CycleGAN, StarGAN, CUT), achieving a Structural Similarity (SSIM) of 0.9858.

### ANNAM.AI | PROJECT INTERN [[CERTIFICATE](#)]

June 2025 – July 2025 | IIT Ropar, India, Remote

- Worked under Dr. Soma Dhavala to develop Sanchalak, a multilingual voice assistant helping farmers access 50+ government schemes via regional audio input.
- Formulated a FastAPI backend with Prolog-based rule engine, and an end-to-end pipeline using Whisper, Azure Translator/TTS, and LLMs (Gemma) for personalized voice interactions.
- Deployed modular microservices on MCP servers with Streamlit UI and automated scheme data ingestion, achieving <5s latency per query.

### SAMSUNG PRISM | PRISM RESEARCH INTERN [[CERTIFICATE](#)]

July 2024 – February 2025 | Chennai, India, On-Site

- Fine-tuned CLAP and CLIP on 20k+ medical audio samples (heart, respiratory, bowel sounds) curated from PhysioNet, BHIC, AudioSet, VGG-Sound, and the Heart Sound Challenge dataset.
- Built a full annotation + preprocessing pipeline, and derived t-SNE plots to visualize CLIP/CLAP embeddings, enabling zero-shot analysis across 10+ body sound classes.

### CCPS, VIT CHENNAI | RESEARCH INTERN [[CERTIFICATE](#)]

June 2024 – July 2024 | Chennai, India, Hybrid

- Conducted research on Human Activity Recognition under Dr. Balasundaram A, developing a HAR-GCNN model that attained 99.99% accuracy on the PAMAP2 sensor dataset.
- Designed a graph-based spatiotemporal architecture robust to 66% missing labels, outperforming CNN (99.75%) and LSTM (98.10%) across 3–25 activity classes.
- Authored a research paper detailing model design, implementation, and benchmarking on structured time-series sensor data.

## PROJECTS

### PARKING SLOT OCCUPANCY DETECTION

- Constructed a hybrid deep learning model combining Swin Transformer (semantic features) and GLCM (texture features) to classify parking slots as Occupied or Vacant from aerial images.
- Delivered 98.58% test accuracy and macro F1-score of 0.9856 on a custom dataset of 6,110 slots with YOLO-format polygon annotations and robustness to shadows and occlusions.

### NEXUS

- Developed a multi-agent AI research assistant using Flask and LangGraph, automating research article generation with 3 agents and reducing manual effort by 75%.
- Implemented data collection from 3+ live sources (Google, ArXiv, Wikipedia), fact-checked with Google Fact Check API, and achieved 100% structured output across 3 formats (.md, .json, .pdf).
- Enabled real-time generation of 800+ word articles in <20 seconds, with tone customization, interactive UI, and seamless PDF export using WeasyPrint and Framer Motion. debugging.

## EDUCATION

### VIT CHENNAI

B.TECH IN ELECTRONICS AND COMPUTER ENGINEERING  
Expected 2026 | Chennai, India  
CGPA: 9.08 / 10.0 [till 6th Sem]

### RADIANT INTERNATIONAL SCHOOL

SECONDARY AND SENIOR SECONDARY EDUCATION  
2021 | Patna, India  
Percentage (Class XII): 95.6%  
Percentage (Class X): 94.2%

## SKILLS

### PROGRAMMING

Python(LangGraph, PyTorch, Tensorflow, Scikit-Learn, OpenCV, Pandas, Numpy, Matplotlib) • Java • C/C++ • SQL • MongoDB

### TECHNOLOGY

Git/Github • AWS • Azure AI • Jupyter • Anaconda • Canva • VS Code • FastAPI • Streamlit • Jira

## COURSEWORK

### UNDERGRADUATE

Operating System • Database Management System • Data Structures and Algorithms • Compiler Design • Deep Learning • Computer Vision • Natural Language Processing • Calculus • Probability & Statistics

### CERTIFICATIONS

- Microsoft Certified: Azure AI Fundamentals [Link]
- Microsoft Certified: Azure AI Engineer Associate [Link]
- Microsoft Certified: Azure Data Scientist Associate [Link]
- Oracle Cloud Infrastructure 2024 Generative AI Professional [Link]

## ACHIEVEMENTS

- Qualified for the Final round of IEEE IC Hackathon 2.0 with AIR 7 out of 600 teams.
- Managed and coordinated Bihar's one of the first Atal Tinkering Labs, provided and funded by Niti Aayog.
- Coordinated and organized successful technical fest events with more than 200 participants.
- Secured 2nd position in State-level Science Exhibition at Governor's house, Patna.
- Languages spoken: English, Hindi, Bengali