

AYUSH KUMAR SINGH

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Education

Indian Institute of Information Technology Guwahati
Bachelor of Technology in Electronics & Communication Engineering

Nov 2022 – June 2026
CGPA: 7.62/10

Technical Skills

Programming Languages: Java, Python

ML/AI Frameworks: PyTorch, TensorFlow, scikit-learn, OpenCV, Hugging Face Transformers, LangChain

Data Science & Visualization: Pandas, NumPy, Matplotlib, Seaborn, Streamlit, NLTK

Development Tools: Git, GitHub, Jupyter Notebook, Google Colab

Experience

Machine Learning Intern

May – July 2025

Triksha Health Pvt. Ltd.

Remote, Hyderabad, India

- Collected and organized a proprietary dataset of 500 medical report images (CBC, LFT, KFT pathology records)
- Developed Streamlit annotation platform for semi-automated structured data extraction from medical images to CSV format
- Built a companion tool to convert CSV annotations into Donut-compatible JSON ground truth using sequence-style transformation
- Preprocessed the entire dataset pipeline, enabling end-to-end training on fine-tuned **Donut OCR** model for structured extraction
- Evaluated model performance using BLEU-1/BLEU-4 scores for predicted JSON outputs against ground truth
- Tech:** Python, Streamlit, Donut OCR, OpenCV, Pandas, Hugging Face Transformers, PyTorch, NLTK

Projects

ViT-LLM for Automated Medical Image Analysis 🌐

- Developed multimodal vision-language framework for automated chest X-ray interpretation and report generation
- Integrated Vision Transformers with generative LLM enhanced by multi-view X-ray fusion and domain-specific fine-tuning
- Implemented attention mechanisms and cross-modal alignment improving diagnostic accuracy and clinical relevance
- Achieved strong performance: **METEOR: 0.2690**, **ROUGE-1: 0.3380**, **ROUGE-L: 0.3565** on benchmark datasets
- Tech:** PyTorch, Hugging Face Transformers, Vision Transformers, BART

WhatsApp Chat Analyzer with Topic Modeling & Sentiment Analysis 🌐

- Developed a comprehensive Streamlit application for WhatsApp chat analysis with message statistics, timelines, and activity maps
- Integrated **Sentiment Analysis** using TextBlob and VADER for sentiment trends, user comparisons, and emotion triggers
- Created interactive visualizations including word clouds, activity heatmaps, and sentiment trend charts
- Tech:** Python, Streamlit, Pandas, Matplotlib, Seaborn, NLTK, TextBlob, VADER

Leadership and Extra-Curricular Achievements

- Captain, IIIT Guwahati Football Team** (2024 – Present): demonstrated leadership, team management, and strategic planning skills
- Co-Head Hospitality, IIITGMUN Second Edition** (2023 – 2024): co-headed the hospitality team at IIITGMUN, leading a team of 20 volunteers catering to a 100 delegates
- Organizing Committee, Bohagi Bihu** (2023 – 2023): managed an event of over 2000 people and prominent Assamese singer
- State-level Football Player (Uttar Pradesh)**: Silver Medalist – resilience, performance under pressure
- NCC 'A' Certificate**: Military training and discipline – time management, adaptability, teamwork

Certifications

- Supervised Machine Learning: Regression and Classification – Coursera (DeepLearning.AI, Andrew Ng)
- Advanced Learning Algorithms – Coursera (DeepLearning.AI, Andrew Ng)
- Unsupervised Learning, Recommenders, Reinforcement Learning – Coursera (DeepLearning.AI, Andrew Ng)