

Kumar Ritik

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Education

Vellore Institute of Technology, Bhopal	Sept 2022 – Present
B.Tech in Computer Science and Engineering, Cumulative GPA: 8.23/10	
Ishan International Public School, Patna	May 2021
Class XII, 74.6%	
Ishan International Public School, Patna	May 2019
Class X, 92.0%	

Experience

Data Science Intern, Sabudh Foundation	Jan 2025 - Jun 2025
<ul style="list-style-type: none">Completed modules in Python Programming, Machine Learning, Deep Learning, Natural Language Processing (NLP), Dataiku, and Data Structures & Algorithms.Collaborated on a team project to implement Deep Learning models to identify brand logos, improving accuracy by 15% over baseline.	

Publications

Alzheimer's Disease Detection Using Convolutional Neural Networks (CNNs)	In Process
Submitted to Springer.	

Projects

Image Captioning and Segmentation	Mar 2025 – Jun 2025
<ul style="list-style-type: none">Implemented a deep learning system with ResNet50 and LSTM for captioning and Mask R-CNN for segmentation on MS COCO 2017, achieving BLEU-4 score of 0.35 and IoU of 0.75.Optimized NLTK preprocessing and PyTorch data loaders, reducing training loss to 2.32 over 3 epochs.Created a Streamlit interface for interactive real-time captioning and segmentation visualization.Tech: Python, PyTorch, ResNet50, Mask R-CNN, NLTK, Streamlit, Matplotlib, COCO API.	

Sentiment Preservation Analysis	Nov 2024 – Feb 2025
<ul style="list-style-type: none">Developed an NLP pipeline using XLM-RoBERTa to classify sentiment in 5,000 English-Hindi sentence pairs from IITB dataset, achieving 71.40% accuracy.Evaluated sentiment preservation, attaining 63.26% accuracy for consistent sentiment between English and Hindi translations on a 2,507-sample test set.Implemented robust evaluation with a 0.72 weighted F1-score and confusion matrices, enhancing model performance analysis using Scikit-learn.Improved interpretability by 20% through visualizing sentiment distributions and confusion matrices with Seaborn and Matplotlib.Tech: Python, XLM-RoBERTa, Scikit-Learn, Pandas, NumPy, Matplotlib, Seaborn.	

Alzheimer's Disease Detection	Aug 2023 – Nov 2023
<ul style="list-style-type: none">Collaborated in team to build a convolutional neural network using InceptionV3 to classify Alzheimer's stages from 6,400 brain MRI images in a 4-class Kaggle dataset and achieving 94.84% accuracy.Optimized data pre-processing pipeline using grayscale conversion and noise reduction, reducing training time by 20%.Applied SMOTE for class balancing and data augmentation to enhance model robustness on imbalanced medical data.Tech: Python, TensorFlow, Keras, Scikit-Learn, OpenCV, Matplotlib, Seaborn.	

Technical Skills

Programming Languages: Python, C++, SQL
Data Science Tools: Pandas, NumPy, Matplotlib, Seaborn, Power BI, Tableau, Dataiku
Machine Learning: TensorFlow, Keras, Pytorch, Scikit-Learn Convolutional Neural Networks (CNNs), Long Short-Term Memory (LSTM), Transformers, Natural Language Processing (NLP), Streamlit
Computer Vision: OpenCV, YOLO, Mask R-CNN
Databases: MySQL, SQLite

Certifications

<ul style="list-style-type: none">Coursera: Applied Machine Learning in Pythoniamneo: Data Science using PythonDataiku: Machine Learning Practitioner, Generative AI Fundamentals

Achievements and Extra Curricular

<ul style="list-style-type: none">KSP Data-thon 2024 Semi-finalist.Completed Deloitte Data Analytics Job Simulation 2025, applying Tableau and Excel for solving real-world tasks.
