

# PIYUSH KUMAR RATH

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## EDUCATION

### VELLORE INSTITUTE OF TECHNOLOGY

Expected July 2026

Bachelor of Technology

Computer Science and Engineering (Specialization in Artificial Intelligence and Machine Learning)

CGPA: 8.49/10

## SKILL

Java | SpringBoot | Python | Flask | Django | Numpy | Pandas | Matplotlib | Scikit-Learn | TensorFlow | PyTorch | NLP | MySQL | MongoDB | Postman | Git

## UNIVERSITY PROJECTS

### DATA DRIFT TOOL

Sept 2025 - Sept 2025

**Technologies Used:** Python, Pandas, Scikit-learn, Streamlit

- Engineered an interactive dashboard to monitor and visualize **4+** types of data drift across more than **50** model features, enhancing the clarity of stakeholder reports by **40%**.
- Automated the drift detection process, reducing manual analysis from hours to minutes (**>95%** time savings) and boosting alert precision by **30%**.
- Implemented core statistical methods such as the Kolmogorov-Smirnov test for numerical features and the Chi-Squared test for categorical features to accurately quantify distribution changes.

### INTELLIGENT DATA MOCKER

Jul 2025 - Aug 2025

**Technologies Used:** React, Next.js, FastAPI, MongoDB, LangChain, Google Gemini API

- Built a full-stack, AI-driven platform with **10+** modern technologies that slashed mock data creation time by **90%** compared to manual entry.
- Developed a responsive chat UI with **12+** custom React components and **15+** features, including persistent chats and real-time validation, to ensure a seamless user experience.
- Constructed a secure FastAPI backend with **11** asynchronous API endpoints for user authentication (JWT), real-time data streaming, and AI-powered title generation via the Gemini API.
- Leveraged LangChain to architect prompt engineering chains and output parsers, enabling the Google Gemini API to generate contextually aware and structurally accurate JSON mock data from natural language inputs.

### SIGN LANGUAGE RECOGNITION SYSTEM

Jan 2024 - Mar 2024

**Technologies Used:** Python, TensorFlow, Keras, OpenCV, Pandas

- Architected a Convolutional Neural Network (CNN) that achieved **95%** test accuracy in recognizing American Sign Language, trained on a diverse dataset of **15,000+** images.
- Implemented a complete data pipeline using image augmentation techniques that increased the model's generalization capabilities by **25%** and significantly reduced overfitting.
- Engineered a real-time inference module with OpenCV to capture and preprocess live video frames, enabling the deployed CNN model to translate sign language gestures instantly.

## EXTRACURRICULAR ACTIVITIES

### LINPACK CLUB

VIT Bhopal University, IND

Core Member

July 2022 – May 2025

- Led hands-on workshops for 100+ members, enhancing technical proficiency in Python and Git.
- Mentored a cohort of **15+** junior members, leading two project teams to a top-5 finish in a university-wide competition.
- Coordinated a collaborative university hackathon that enhanced technical learning and networking for **150+** participants.

### PARTICIPANT | ADOBE INDIA HACKATHON

## CERTIFICATIONS

Microsoft Certified: Azure Fundamentals | Postman API Student Expert | IBM GEN-AI | IBM BLOCKCHAIN – Developer

## ADDITIONAL

**Languages:** Fluent in English, Hindi

**Interests & Hobbies:** Photography, Chess, Team-Based Strategy Gaming