

Satyam Singh

Curriculum Vitae

Kharagpur, West Bengal
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in LinkedIn GitHub
Portfolio

Education

B.Tech in Computer Science and Engineering
NIST University, Berhampur, Odisha. CGPA: **9.1** / 10

Aug 2023 – Present

Research Interests

Machine Learning: Neural Networks, Representation Learning, NLP | **Focus:** Robust Model Design, Real-time Inference

Technical Skills

Machine Learning	PyTorch, TensorFlow, Keras, Scikit-learn, CNNs, RNNs, LSTMs, Transformers
Computer Vision	Object Detection, Feature Pyramids, Context Modeling, Data Augmentation
Systems & Tools	Docker, CUDA, NumPy, Pandas, REST APIs, PostgreSQL, MongoDB, AWS

Experience

Machine Learning Research Intern
Indian Institute of Technology Mandi

May 2025 – Aug 2025

Researched and implemented YOLO-based architectural enhancements for small object detection in aerial and satellite imagery, including SPD-Conv, feature reuse strategies, an additional small-object detection head, and MPDIoU loss, using PyTorch-based reproducible training and evaluation pipelines; achieved up to **92.9% precision** on evaluated datasets.

Projects

VARDAx Connect – ML-Powered Web Application Firewall

Dec 2025

– Built production-grade ML-driven WAF for real-time threat detection and automated security response using advanced traffic pattern analysis.

Smart Power Demand & Generation Prediction System

Jun 2025

– Designed multi-region DL system forecasting power generation using LSTM/GRU and Transformers; evaluated with MAE, RMSE against ARIMA baselines.
– Deployed Dockerized inference behind REST API with experiment tracking for reproducibility.

Brain Tumor Classification Using CNNs

Feb 2025

– Built medical image pipeline for MRI tumor classification using fine-tuned VGG16/ResNet; achieved 92% validation accuracy with data augmentation.

Sign Language Recognition Using Deep Learning

Sep 2024

– Developed real-time ASL recognition system with optimized CNNs achieving 95% accuracy across multiple users and conditions.

Fake News Detection Using NLP and LSTM

Jun 2024

– Implemented LSTM-based detection with GloVe embeddings achieving 89% F1-score; conducted error analysis on linguistic patterns.

Awards and Achievements

- **Finalist** (Top 30/2400 teams) – IIT Guwahati Techniche Tech-Expo 2025
- **Rank 76** – IIT Kharagpur Data Science Hackathon (Kshitij) 2025
- **First Prize** – College Research Paper Competition: "Fault-Tolerant Task Scheduling for Cloud Computing"