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RAJ NANDINI SINGH

Machine Learning | AI Research

Portfolio: portfolio
github.com/nandinisingh16
linkedin.com/in/raj-nandini2216

Skills

Machine Learning	PyTorch, TensorFlow, Scikit-learn, XGBoost, Model Evaluation (F1, AUC, Precision/Recall), Hyperparameter Optimization
Deep Learning	CNNs, RNNs/LSTMs, Transformers, Computer Vision (OpenCV), NLP (spaCy, NLTK), Generative AI
Programming	Python, SQL, C++, Linux/Bash, Git, Docker, FastAPI, Streamlit
Data Processing	Pandas, NumPy, Data Cleaning, Feature Engineering, SQL (CTEs, Window Functions)
MLOps & Cloud	AWS (EC2, S3), Basic CI/CD, Model Deployment, Experiment Tracking

Projects

Autonomous Agentic Data Preprocessing System **github.com/nandinisingh16/agenticPipeline**
Python, Llama 3, ML Agents, Modular Pipeline

- Engineered an LLM-driven pipeline (Llama 3) to automate data ingestion, cleaning, and feature engineering, reducing manual preprocessing time from 2 hours to 15 minutes (88
- Designed a modular orchestrator with detailed logging and artifact tracking, ensuring full reproducibility across 10+ diverse datasets.
- Implemented intelligent data validation and quality checks using rule-based agents, improving dataset consistency by 40

End-to-End YouTube Sentiment Analysis Pipeline **github.com/nandinisingh16/sentimentAnalyse**
Python, LightGBM, TF-IDF, AWS, Model Deployment

- Built a production ML system from data collection to deployment: TF-IDF feature extraction with LightGBM classifier achieving 85% accuracy on sentiment classification.
- Implemented automated retraining pipeline with model versioning and performance tracking.
- Optimized feature engineering pipeline, reducing inference latency by 30% while maintaining accuracy.

Human Activity Recognition with Real-Time Inference **github.com/nandinisingh16/ActionRecog**
PyTorch, MobileNetV2, LSTM, OpenCV, Model Optimization

- Architected and trained a hybrid CNN-RNN model achieving 87% accuracy on UCF50 dataset for video-based activity recognition.
- Implemented advanced data augmentation techniques (temporal cropping, spatial transformations) increasing model robustness by 15%.
- Conducted comprehensive model evaluation including confusion matrix analysis, per-class metrics, and cross-dataset validation.

Experience

Generative AI Intern **May 2025 — Jul 2025**
PhotoGPT AI Startup *Remote*

- Developed and tested prompt engineering strategies using A/B testing framework, increasing theme consistency and user-rated relevance by 15%.
- Prompt automated evaluation pipelines for generative models, reducing manual evaluation time by 30% through Python scripting and metric automation.
- Conducted experiments with different model architectures and training techniques to optimize for specific content categories.

Frontend Development Intern **Apr 2025 — Sep 2025**
Evephoria *Noida, India*

- Built frontend interfaces for model configuration and real-time inference results display.
- Created reusable UI components for data exploration and model output visualization.
- Collaborated with ML team to design user-friendly interfaces for model experimentation and results analysis.

Education

Bachelor of Technology in Computer Science, Minors in Artificial Intelligence, *Amity University, Noida* 2022 — 2026 *CGPA: 8.38/10* |
Relevant Coursework: Deep Learning, Natural Language Processing, Computer Vision, Statistical Learning

Certifications

- Machine Learning Specialization – DeepLearning.AI (Andrew Ng)
- IBM Data Science Professional Certificate – IBM
- Mathematics for Data Science and GenAI – Udemy

Leadership & Achievements

- Hackathon Achievement: Top 5 in CyberCup 4.0 for designing an ML-based optimization pipeline.
- Hockey Team Captain and ASET Convener: Demonstrated leadership and teamwork by leading university team to championship wins.
- Creative Head, IOT Alliance Club: Organized 5+ university tech events, showcasing project coordination skills.