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Mithun Shivakoti

Machine Learning Engineer | Data Scientist

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Skills

Core ML: PyTorch, TensorFlow, Scikit-learn, Hugging Face, LangChain, LangGraph, OpenAI API, Keras
Domains: LLMs, Generative AI, NLP, Computer Vision, Time Series, Anomaly Detection, Diffusion Models, RAG, AI Agents, Prompt Engineering
MLOps: MLflow, Weights & Biases, Docker, Kubernetes, Airflow, FastAPI, CI/CD, Model Monitoring, Distributed Training
Evaluation & Data: SHAP, LIME, Argilla, Label Studio, A/B Testing, Pandas, NumPy, Feature Engineering
Cloud & Databases: AWS (SageMaker, Lambda, Fargate, S3, EMR), GCP (Vertex AI, BigQuery), PostgreSQL, MongoDB
Streaming & Infra: Kafka, REST APIs, Microservices, Linux, Bash, Git
Languages: Python, SQL, R, Bash

Experience

Artificial Intelligence Intern May 2025 – Aug 2025
DriveHealth *Gilbert, United States*

- Deployed a DistilBERT-based NLP model for voice AI classification achieving **98% accuracy** with **<100 ms** inference latency in production.
- Integrated Human-in-the-Loop validation pipelines using Argilla and Label Studio, reducing model iteration cycles and improving evaluation throughput.
- Redesigned backend architecture by extracting user operations into a dedicated microservice with secure TCP communication and database isolation, enabling independent scaling of the core ML platform.

Software Development Engineer Intern Jan 2024 – Jun 2024
SignalX *Hyderabad, India*

- Built and deployed a multi-model orchestration system on WhatsApp with persistent user state and dynamic routing across three specialized models (live website and DB fetch,RAG), serving **50,000+** businesses.
- Built an OCR model to automate captcha solving, scaling throughput from **70,000 to 700,000** daily transactions.
- Engineered an adverse media classification module (**96% accuracy**), improving corporate risk analysis speed.
- Automated summarization of 30+ page reports into 1-page briefs, cutting analysis time by **90%**.

Machine Learning Engineer Intern Oct 2022 – Aug 2023
TE Connectivity *Bengaluru, India*

- Developed regression-based optimization pipeline (GPR + Ridge + ElasticNet) reducing signal loss to **below 1%**.
- Designed modular experimentation pipelines improving reproducibility and accelerating model validation.

Junior Machine Learning Engineer Intern Jan 2023 – Mar 2023
Omdena *Colombo, Sri Lanka*

- Developed supervised classification models for early autism risk detection achieving **96%** validation accuracy through feature engineering and cross-validation.

Publications

Abg-SciQA: Benchmarking and Enhancing Ambiguity Detection and Clarification in Language Models ***ICLR 2025***
ShadeBench: A Benchmark Dataset and Method for Shade Simulation in Sustainable Society ***NeurIPS 2025***
DeepShade: Enable Shade Simulation by Text-conditioned Image Generation ***IJCAI 2025***
System and Method for Predicting Water Quality ***Patent***

Projects

DeepShade | *PyTorch, ControlNet, Diffusion Models, Satellite Imagery*

- Built a conditional diffusion model to simulate time-dependent urban shadow patterns from satellite imagery; improved SSIM from 0.43 (baseline) to 0.97 (full model) with 3× faster convergence than vanilla ControlNet.
- Used InfoNCE loss with 1-hour positive pairs; injected Canny edge maps as a 4th input channel; applied outputs to shade-aware urban route optimization.

KNOXRT | *CNN-LSTM, CNN-GRU, Tree Ensembles, G-SMOTE*

- Designed CNN-LSTM/CNN-GRU ensemble with tree-based classifiers for real-time threat detection achieving **99%+** accuracy on benchmark datasets; used G-SMOTE for class balancing.

Sentinel | *Anomaly Detection, Time Series, Market Data*

- Built a stock-risk forecasting module (**<3% error**) combining market and volume signals to flag anomalous insider trading activity.

Adaptive Drift-Mitigation Framework | *Concept Drift, Edge ML*

- Implemented sliding-window concept drift detection with automated retraining for edge ML systems, mitigating degradation under shifting data distributions.

Education

Arizona State University Tempe, Arizona
Master of Science, Data Science — GPA: 4.00/4.00 *Aug 2024 – May 2026*

Vellore Institute of Technology Amaravathi, India
Bachelor of Technology, Computer Science (AI) — GPA: 9.12/10 *Sept 2020 – May 2024*