Vishak Bharadwaj

Machine Learning Engineer III

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PROFILE

Machine learning engineer with 6+ years building end-to-end ML systems — from deep learning research to production monitoring and MLOps pipelines. Experienced in model explainability, deployment, and drift monitoring at scale. Strong foundations in computer vision, NLP, and quantitative modelling.

EXPERIENCE

Machine Learning Engineer II → III

Jun 2022 — Present

Glance · Bengaluru, India

- **Hybrid Recommendation Engine:** Designed and deployed a dual-track ranking pipeline that dynamically routes users based on data density — owning the Samsung channel (40M users) within a 150M-user platform. Powered the "dense" track with Gemini-enriched content embeddings, a Two-Tower retrieval model, and an LGBM ranker, while gracefully handling cold-start "sparse" users using Wilson's lower bound popularity and recency signals. Achieved a **40% lift in interactions** — notable for a locked-in lock screen product where users never actively opt in.
- **Signal Extraction & Data Pipeline:** Iterated extensively on high-volume, noisy event logs (150M+ user signals) to isolate clean, high-intent engagement signals, ensuring downstream ML models were trained on accurate behavioral data. 30-min hourly batch pipelines; low-latency online serving.
- **Infrastructure (Vertex AI → GKE):** Built online and offline serving pipelines on Vertex AI with Vertex Feature Store; migrated to GKE + Argo CD for cost efficiency; wrote Golang prediction services and model controllers; instrumented with OpenTelemetry and Grafana.
- **Experimentation (Alchemist):** Contributed to an internal A/B testing platform; derived minimum sample sizes from inference/confidence equations to ensure statistical significance before shipping ranking changes.
- **AI Annotation Setup:** POC for annotation workflows; GenAI-based image metadata tagging with LLMs and prompt engineering for category classification; drove annotation cleanup and cost reduction.

Machine Learning Engineer I

Nov 2020 — Jun 2022

Censius AI · Bangalore, India

- **Explainability Module:** Used SHAP and LIME to explain model predictions and provide insight into why models produce the outputs they do; logged and monitored using MLflow, Prometheus, WhyLogs and Grafana.
- **Drift Prediction Module:** Created APIs for continuous monitoring of model performance and production data; monitored data and concept drift with custom code and WhyLogs; built data quality, drift and performance monitors on Prefect / Airflow jobs.
- **Deployment & Infrastructure:** Containerized and deployed using Docker, GitHub Actions and AWS ECS; orchestrated workloads on Kubernetes.
- **ML Lifecycle:** Worked across the full ML lifecycle — from model onboarding and deployment to post-production monitoring — enabling clients to detect model degradation early and act on it.

Machine Learning Intern → Jr Machine Learning Engineer

Jul 2018 — Oct 2020

Omni-Eye / The Valley Edutech · Bangalore, Karnataka

- Built models for security systems for the **Omni-Eye** platform.
- **Eye In the Sky — Real-time Image Processing:** Stacked deep learning models to process images for object detection, facial recognition and plate detection. MTCNN network for facial detection; finetuned PyTorch models for facial recognition. OCR and data pipelines for plate recognition. Tracked all experiments with MLflow.
- **Image Search & Clustering:** Created, trained and finetuned a CNN autoencoder that converts unlabelled images into feature vectors; inserted into KNN and LSH (Locality Sensitive Hashing) for fast similarity search and into unsupervised clustering algorithms to group image data.
- **Student Platform & Instruction:** Developed a portal for tracking student progress (Flask, MongoDB) with GitHub commit-tracking APIs; instructed Python, ML and Deep Learning cohorts with a code-first, project-oriented approach.

NOTABLE PROJECTS

- **ResNet50 on ImageNet-1k from Scratch** ERAv4 · AWS EC2 — No pretrained weights; trained on full ImageNet-1k on EC2; 75%+ top-1 accuracy; ~10,000 people globally. HuggingFace demo.
- **YouSum — AI YouTube Summarizer** Chrome Extension — Streaming YouTube summaries via Claude & ChatGPT APIs; 5 detail levels, background generation, persistent storage.
- **YOLO Object Detection** Andrew Ng · C4 — Real-time detection for autonomous driving; bounding box prediction, IoU and non-max suppression from scratch.
- **Face Recognition with FaceNet** Andrew Ng · C4 — One-shot face verification using the FaceNet architecture and triplet loss.
- **Poetry Analysis Studio** Flask · Gemini AI — Poem analysis and generation (Haiku, Sonnet, Limerick, Free Verse) with detailed literary analysis via Google Gemini.
- **Neural Machine Translation with Attention** Andrew Ng · C5 — Seq2seq model with an attention mechanism, learning to focus on relevant input positions at each decoding step.
- **Rossmann Store Sales Prediction** Kaggle · Top 0.4% — Deep embedding network; 10% RMSPE; **11th out of 3,000+ teams**.
- **BlueBook for Bulldozers** Kaggle · Top 0.4% — Random Forest Regressor; RMSLE 0.2214; **2nd out of 476 teams**.

DOMAINS

Machine Learning · Recommendation Systems · Deep Learning · MLOps · Computer Vision · NLP · Model Monitoring

STACK

Python · Go · PyTorch · Scikit-learn · Pandas · NumPy · PySpark · Vertex AI · GKE · OpenTelemetry · Grafana · SHAP / LIME

EDUCATION

Bachelor of Engineering

B M S College of Engineering · Bangalore

2012 — 2016

CERTIFICATIONS

Deep Learning Specialization

Andrew Ng · deeplearning.ai · 5 courses

- Neural Networks & Deep Learning
- Hyperparameter Tuning, Regularization & Optimization
- Structuring Machine Learning Projects
- Convolutional Neural Networks
- Sequence Models

END2 — Extensive NLP via Deep Models

The School of AI

- Transformers, attention, BERT, GPT-1/2/3
- PyTorch for NLP, embeddings, language modelling
- Retrieval-augmented generation techniques

ERAv4 — Extensive & Reimagined AI Program

The School of AI

- LLM pretraining & instruction tuning from scratch
- QAT, RLHF, Vision-Language Models (CLIP)
- Multi-GPU CNN training on ImageNet