

Naman Lazarus

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Education

Master of Science in Computer Science Northeastern University, Boston, MA	Sep 2025 - April 2027
Bachelor of Engineering in Information Technology University of Mumbai, Mumbai, India	Aug 2016 - Oct 2020

Work Experience

Ernst & Young | Machine Learning Engineer | Pune, India Sep 2024 - Aug 2025

- Built a writer-independent signature verification system using a **two-stage Siamese network** with **Spatial Transformers** module and Focal Loss in **TensorFlow**, achieving 6% False Rejection Rate (FRR), 2% False Acceptance Rate (FAR), and 98% accuracy.
- Architected an **insider threat detection system** for a U.S. tier-one bank using **PyTorch Geometric**-based **graph autoencoders** and **PROPHET** time-series modeling, increasing detection speed by 60% and reducing false positives by 37%.
- Designed a **RAG framework with recursive multi-level segmentation** and feedback loops using **LangChain** for **SQL data lineage auditing**, reducing query deflection by 85% and boosting Precision@K, Recall@K, and MRR 75%+.
- Led the development of a KYC platform with offline signature verification, **FaceNet**-based facial verification, and an **LLM agent-based orchestration workflow** for PEP/adverse media screening using **CrewAI**, securing deals with two U.S. banks.

Tata Consultancy Services | Machine Learning Engineer - ignio | Pune, India Nov 2020 - Sep 2024

- Developed a natural language-driven **counterfactual analysis engine** for an observability platform with **fine-tuned Sentence Transformers** and a **multi-agent reasoning network**, allowing C-suite users to query and explore hypothetical system states.
- Implemented an **interpretable Random Forest** framework in **SKLearn** with **SHAP** and **Gini-based feature attribution** plus **rule-path visualization**, improving stakeholder trust and regulatory audit readiness across the product's predictive modules.
- Built a frequent-pattern mining engine using a **custom tree ensemble** to detect enterprise security compliance bottlenecks, **reducing mean-time-to-remediate (MTTR) by 73%** and enabling remediation of security gaps.
- Engineered a **vulnerability exploit-prediction module** using threat-intelligence signals from MITRE CVE, CISA KEV, CPE, NVD, and ExploitDB, achieving **~64% recall** and **~75% precision** at a 50% confidence threshold.
- Engineered a **content-based recommender engine** to accelerate enterprise security hardening by **15–20%**, recommending controls tailored to business context and historical actions.

Tata Institute of Fundamental Research | Deep Learning Intern | Mumbai, India Jul 2019 - Oct 2020

- Developed a **custom OCR pipeline** for low-resource handwritten scripts using **Connected Component Labeling**, **Histogram Projection**, and **K-means Clustering**, paired with a custom **CNN** in TensorFlow for character recognition. Achieved accurate conjunct segmentation with an average **CER of ~8%**.
- Built an end-to-end **annotation-to-inference software suite in Qt**, streamlining data labeling, training, and inference workflows, reducing researcher preparation time and enabling faster model iteration.
- Engineered a **serverless AWS data pipeline** for free-form Personally Identifying Information (PII) detection on financial contracts using a **locally hosted transformer model**, **reducing manual review time by 75%** with **98% detection accuracy**.

Skills

Languages: Python, R, C++, Java, JavaScript, Scala, SQL, Dart

ML Frameworks: PyTorch, TensorFlow, scikit-learn, XGBoost, LightGBM, Hugging Face, LangChain, LangGraph, CrewAI, AutoGen

ML Systems & MLOps: MLflow, Spark, Databricks, Airflow, Docker, Kubernetes (for Kubeflow/Vertex AI), FastAPI, MLOps

Specialties: Multimodal AI, Deep Learning, NLP, Computer Vision, Agentic AI, Statistical Modeling, Graph ML, Large Language Models

Cloud Platforms: AWS, Azure, GCP (for Vertex AI, BigQuery, Dataproc)

Other Tools: Git, Pandas, NumPy, Vector Databases, matplotlib, seaborn

Research Publications (First Author)

Handwritten Gujarati Script Recognition - *WRFER 2020 – World Research Forum for Engineers and Researchers* ([\[link\]](#)).

Selected Achievements

- EY Spot Award (2025)** - Honored by Span Head for leading the development of a high-impact asset that strengthened business engagement with multiple top-tier U.S. financial institutions.
- Winner - Digitate Ideathon (2023)** - Secured **1st place among 111+ teams** in an enterprise-wide innovation hackathon by developing an **LLM-based customer support assistant** ([\[link\]](#)).
- Finalist - Smart India Hackathon (2019)** - Among the top 4 teams in the country in the hackathon conducted by the Indian Government ([\[link\]](#)).