

Vigneshwari Jayaprakash

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EDUCATION

ARIZONA STATE UNIVERSITY

Master of Science, Data Science (Computing & Decision Analytics)

Aug 2024 - May 2026

Tempe, AZ

- **GPA:** 4.0/4.0
- **Achievements:** ASU Scholar - Merit-based award for academic excellence

ANNA UNIVERSITY

Bachelor of Technology, Information Technology

Jun 2009 - Apr 2013

India

- **GPA:** 3.6/4.0
- **Achievements:** Gold Medalist - Awarded for academic distinction

TECHNICAL SKILLS

- **Languages & Frameworks:** Python, SQL, R, Pandas, NumPy, PySpark, FastAPI, Shell Scripting
- **Generative AI & NLP:** LLMs (GPT-4, Llama 3), RAG, LangChain, LangGraph, Prompt Engineering, PyTorch, TensorFlow
- **Machine Learning:** Supervised Learning (XGBoost, Random Forest, Regression), Unsupervised Learning (K-Means, PCA, Clustering), Time-Series Forecasting
- **Statistics & Experimentation:** A/B Testing, Causal Inference, Hypothesis Testing, Bayesian Statistics, Probability
- **Data Engineering & Vector Search:** FAISS, Pinecone, ChromaDB, SQL Data Pipelines, Snowflake, Databricks, ETL
- **Visualization:** Tableau, Power BI, Matplotlib, Seaborn, EDA, Data Storytelling
- **MLOps & Cloud:** AWS (S3, Lambda, EC2), Docker, CI/CD, MLflow, Model Monitoring

PROFESSIONAL EXPERIENCE

New Mexico Department of Information Technology

Jun 2025 - Aug 2025

Data Scientist Intern

NM, USA

- **Reduced engineer triage time by 70%** by architecting an automated **RAG-based LLM Chatbot** using **LangGraph** and **ChromaDB** to analyze and summarize 10K+ infrastructure logs.
- **Achieved 85% anomaly detection accuracy** and cut false positive alerts by 60% by deploying **XGBoost** and **Isolation Forest** models via FastAPI on AWS.
- **Improved F1 score by 22%** through targeted **EDA** and **feature engineering** on high-dimensional incident logs using Python and SQL.

Infosys Ltd (Client: BNSF Railway)

Oct 2013 - Jan 2019

Technology Analyst (Data Science and ML Engineering)

India

- **Generated \$1M+ annual savings** by designing a **financial fraud detection system** processing 1M+ transactions with **<200ms latency**.
- Boosted F1 score by 18% using **Causal Inference** and **5-round A/B testing** to isolate and validate model gains of XGBoost over Logistic Regression.
- **Segmented 5K+ railway vendors** into risk tiers by building a **K-means clustering** engine in SQL, enabling targeted fraud prevention.
- **Saved \$400K annually** by deploying **time-series forecasting models** on Databricks and PySpark to predict maintenance for 500+ assets.
- Optimized model training efficiency by building automated **SQL-based data pipelines** for seamless feature extraction and periodic model retraining.
- **Earned 3 promotions in 5 years** (Software Engineer Trainee → Tech Analyst) for delivering high-impact executive **KPI dashboards** and technical leadership.

Career Transition & Technical Upskilling

Feb 2019 - Jul 2024

Advanced Data Science & AI Specialization

USA

- **Mastered modern AI infrastructure**, including **LLMOps**, **Vector Databases**, and **Cloud-native ML (AWS)**, by engineering a portfolio of end-to-end production applications to bridge technical gaps with state-of-the-art industry standards.

PROJECT EXPERIENCE

Real-Time Multi-Domain Risk Intelligence Platform

- Attained 94% recall on 590K transactions by building an end-to-end **XGBoost** and **LSTM** failure prediction pipeline with **PyTorch**.
- **Reduced manual risk review by 40%** by integrating SHAP explainability into a Streamlit dashboard for transparent model decision-making.
- Technologies: Python, XGBoost, LSTM, PyTorch, LangChain, FastAPI, AWS, Streamlit, Docker.

E-Commerce Hybrid Recommender System (Two-Tower Retrieval)

- **Reduced inference latency by 60%** on 2M+ products using a **Two-Tower Neural Network** and **FAISS** for Approximate Nearest Neighbor (ANN) search.
- **Increased MRR by 22%** and **NDCG@10 by 18%** by engineering a **LightGBM ranker** to optimize weighted conversion objectives.
- Technologies: TensorFlow Recommenders, LightGBM, FAISS, Sentence Transformers, MLflow, FastAPI.

AI-Powered Railway Track Defect Detection

- **Achieved 92% defect detection accuracy** by designing a **CNN-based pipeline** using **YOLOv11** and transfer learning on 500+ hours of railway footage.
- **Reduced manual review time by 35%** by containerizing the **PyTorch** inference stack with **Docker** and deploying a 3-tier confidence scoring dashboard.
- Technologies: Python, YOLOv11, PyTorch, OpenCV, Docker, CNNs, Computer Vision.

AWARDS & RECOGNITION

- **CIO Recognition - New Mexico DOIT:** for developing an end-of-life device tracking report in Power BI for state leadership.
- **CFO Recognition - BNSF Railway:** for \$1M+ annual savings via ML-driven fraud detection system
- **Insta Award - Infosys:** for top-tier peer recognition for ML engineering impact and legacy system modernization