Vigneshwari Jayaprakash

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Portfolio: vigneshwarijayaprakash.github.io

Data Scientist with 5+ years delivering production analytics and ML solutions in regulated environments (government, transportation, enterprise). Strong in Python, SQL, statistics, and experimentation, with proven results shipping decision-ready insights and ML systems driving 45% latency reduction, 30% productivity lift, and $1M+ cost savings.

Education

Arizona State University — Tempe, AZ
Master of Science in Data Science (Computing and Decision Analytics) | GPA: 4.0/4.0 — *Aug 2024 – May 2026*

Anna University — India
Bachelor of Technology in Information Technology | GPA: 3.6/4.0 — *2009 – 2013*

Technical Skills

Programming & Analysis	Python (Pandas, NumPy, scikit-learn), SQL, R
Statistics & Experimentation	Hypothesis Testing, Confidence Intervals, Regression, Experiment Design, A/B Testing
Machine Learning	Classification, Regression, Clustering, Anomaly Detection, Forecasting, Feature Engineering, Model Evaluation, TensorFlow, PyTorch
GenAI / NLP	LLM Integration, Embeddings, Retrieval-Augmented Generation (RAG)
Data Engineering	ETL Pipelines, Data Modeling, Data Validation, Automation
Visualization & Reporting	Tableau, Power BI, Excel, Executive Dashboards, Data Storytelling
Collaboration	Git, Code Reviews, Documentation, Agile (Scrum/Kanban)
Certifications	Machine Learning Specialization, Deep Learning Specialization, Gen AI with AWS

Experience

New Mexico Department of Information Technology — USA
Data Scientist – Machine Learning & Analytics — *Jun 2025 – Dec 2025*

- Owned end-to-end analytics delivery: problem framing with stakeholders, metric definition, dataset creation (Python/SQL), and executive-ready insights for statewide cybersecurity operations.
- Built and shipped the department's first **GenAI-powered conversational analytics system** using **LLMs, embeddings, and RAG**, reducing incident insight retrieval from minutes to seconds.
- Developed **predictive and anomaly-focused models** over 10,000+ incident records, accelerating triage and supporting proactive risk mitigation.
- Designed **statistical comparisons and iterative experiments (A/B-style testing)** to evaluate workflow changes, driving **30% analyst productivity improvement**.
- Optimized analytics pipelines and data access patterns, achieving **45% reduction in retrieval latency** and improving system responsiveness.

Infosys Limited — India
Technology Analyst & Senior Software Engineer (Data & Analytics) (Client: BNSF) — *Oct 2013 – Jan 2019*

- Delivered analytics and data solutions across sourcing, finance, HR, transportation operations, and medical systems in a high-volume enterprise environment.
- Built an **automated fraud detection and financial reconciliation system** that replaced manual checks and delivered **$1M+ annual cost savings** (CFO recognition).
- Applied **statistical analysis and predictive modeling** (regression, classification, anomaly detection) using Python and SQL to surface inefficiencies and operational risk patterns.
- Designed and optimized **data pipelines processing 1M+ records/day**, **reducing reporting latency by 40%** and improving reliability.

Projects

Transaction Risk Scoring & Anomaly Detection Platform | *Python, PySpark, scikit-learn, XGBoost*

- Developed a transaction risk scoring pipeline using PySpark and Python to analyze **280k+ historical transactions**, substantially improving fraud detection recall through feature engineering and ensemble modeling.
- Designed temporal and behavioral features to handle extreme class imbalance, **achieving an Matthews Correlation Coefficient of 0.83** and providing interpretable risk drivers using SHAP-based explanations.

Adaptive Offer Selection & Learning System | *Python, Reinforcement Learning, Streamlit*

- Implemented an adaptive offer selection system using a contextual bandit **Linear Upper Confidence Bound** to learn optimal promotions based on user context and historical interactions.
- Observed a **130% lift in simulated conversion rate** compared to static A/B baselines and built an interactive Streamlit dashboard to visualize policy learning and reward trends.

Awards & Achievements

Insta Award for modernizing legacy systems; **CFO Recognition** (BNSF Railway) for $1M+ savings from fraud detection.