Vaibhav Vennam

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WORK EXPERIENCE

Michigan State University — **East Lansing, MI**
Graduate Research Assistant — *Aug 2025 – May 2026*

- Designed an end-to-end LLM evaluation study comparing 2 GPT models across 20 culturally grounded prompts and 20 planned participants to assess accuracy, bias, nuance, and inter-rater agreement.
- Built a GCP-backed Streamlit platform using Python and OpenAI APIs to preserve anonymized participant progress and automate data collection and researcher-facing analysis.
- Analyzed 216K retweeted posts using BiLSTM, LDA, LIWC, and two-sample t-tests, isolating 19.5K anti-vaccine posts and identifying statistically significant narrative shifts.

Fractal Analytics | **Google Ads Client** — **Bengaluru, India**
Decision Scientist — *Oct 2021 – Aug 2024*

- Increased revenue 30% across 1,000+ advertiser accounts by segmenting businesses by vertical, region, and seasonality, applying two-sample z-tests, and targeting underperforming segments.
- Recovered $1.2M+ in missed refunds and cut weekly processing from 5–6 hours to under 1 hour by redesigning validation logic and automating pipelines across 1M+ records.
- Protected 200+ victim accounts by building SQL regex detection that automatically filtered fraudulent reviews and fake leads before they reached human review workflows.
- Built and maintained 12–15 dashboards and supporting pipelines used by 30+ users and 5 program managers to monitor reviews, account health, campaign performance, and anomalies.
- Influenced product and growth decisions through weekly business reviews, identifying emerging advertiser verticals and translating CPC, CTR, conversion, and adoption trends into recommendations.

Virtuos Digital — **Gurugram, India**
Associate Developer — *Jan 2019 – Oct 2021*

- Eliminated 2–3 second page-load delays for 500+ engineers by optimizing SQL queries and refactoring database logic across enterprise applications.
- Developed and deployed 40+ .NET Web APIs supporting scalable data exchange while strengthening backend security and production database reliability.

SELECTED PROJECTS

Jackson National Life – RILA Cap Rate Modeling & Recommendation
Michigan State University

- Captured 80% of rare cap-rate changes with ROC-AUC 0.91 using a two-stage CatBoost pipeline built for a 1.96% positive-event rate.
- Prevented target leakage and recursive forecast error using an 80/20 temporal split, one-day feature lag, and stepwise prediction; achieved RMSE 0.039 and R^2 0.95.
- Served as RILA subject-matter expert, translating model findings for nontechnical audiences and presenting 5 team recommendations to Jackson National Life and expo attendees.

Weather-Driven Energy Consumption Analysis
Michigan State University

- Built a data pipeline across NOAA, EIA, and NIFC sources, applying Granger causality, Spearman correlation, PCA, and 4 clustering methods to identify energy-demand drivers.
- Deployed a live Streamlit app with SARIMAX forecasting and geospatial visualization across 49 states and 25 years of data, achieving MAE <2°F.

EDUCATION

Michigan State University — **East Lansing, MI**
Master of Science, Data Science | GPA: 4.0 — *May 2026*

Shiv Nadar University — **India**
Bachelor of Science, Computer Science | Minor in Mathematics — *Dec 2018*

SKILLS & CERTIFICATIONS

Programming & Data: Python | SQL | R | Bash | REST APIs | PySpark | ETL
Data Science & ML: A/B Testing | Hypothesis Testing | Customer Segmentation | Causal Inference | Forecasting | Predictive Modeling | CatBoost | Scikit-Learn | PyTorch | Transformers | LIME
BI & AI: Tableau | Power BI | GCP | Docker | FastAPI | Git | CI/CD | LLM Evaluation | RAG | LangChain | OpenAI APIs
Certification: Microsoft Certified: Azure MLOps Engineer Associate (AI-300) – In Progress