

Erica (Xueyang) Zhao

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WORK EXPERIENCE

Machine Learning Engineer

Jul 2025 – Present

MyEdMaster, LLC

Remote

- Shipped **LLM-powered** features for personalized AI assistant via **production-grade** GenAI workflows.
- Built personalization logic using user context and understanding checks to adapt response strategy.
- Built **RAG pipelines** with **LangChain**; iterated prompts instructions for grounded task completion.
- Fine-tuned and evaluated **transformer models** with **Hugging Face** to improve accuracy and consistency.
- Developed **evaluation framework** to track hallucinations, omissions, irrelevance and speed up iteration.
- Ran feedback loops using internal test sets and user signals to continuously improve quality across releases.
- Productionized via **Python services (Flask, Django)**, enforcing **structured outputs** downstream.
- Optimized **inference performance** via caching, batching, and prompt optimization for scalable serving.
- Deployed on **cloud** with **Docker** to support iterative releases and stable uptime.

Graduate Instructional Assistant

Aug 2024 – May 2025

George Washington University

Washington, DC

- Led SQL, Tableau support for 60+ learners in data warehousing and visualization courses by technical coaching.
- Translated complex analytics concepts into clear, actionable guidance for non-technical users.
- Built grading rubrics and SQL/BI troubleshooting playbooks, including relational (SQL) and NoSQL (MongoDB) workflows, to streamline high-volume feedback cycles and ensure consistent, reliable operations.

PROJECTS

Mental Health Demand–Supply GapSight | Python, Pytrends, XGBoost, SHAP | [GitHub](#) Jan – May 2025

- Quantified mental health demand–supply gaps across U.S. states by building 2020–2024 state–month dataset integrating Google Trends (400+ mental-health queries) and HRSA/AHRF provider-capacity metrics.
- Trained interpretable machine learning models (XGBoost + SHAP) for anxiety/depression demand indices.
- Shipped interactive dashboard to track demand–supply gaps and top drivers by state and month. ([demo](#))

NIH Grant Activity Classifier | Python, scikit-learn, pandas, Classification | [GitHub](#) Aug – Dec 2024

- Built multi-class NIH grant activity classifier (F/T/K/R) using NIH RePORTER FY18–FY23 (118k+ records).
- Engineered labels from activity codes and harmonized cross-year features to support pipeline planning.
- Tuned and benchmarked 4 models with GridSearchCV; Histogram-based Gradient Boosting achieved 0.93 macro-F1 on validation set, outperforming Random Forest, Logistic Regression, and MLP baselines.

Personal Finance Tracker | React/Next.js, Node.js, PostgreSQL | [GitHub](#) Jan – Jun 2024

- Built a full-stack budgeting & expense tracking web app with PostgreSQL schema design and REST APIs.
- Delivered key features (CRUD, categorization, summaries) and deployed an end-to-end product.

TECHNICAL SKILLS

GenAI/ML | LLMs, RAG, Transformers (GPT), Prompt Engineering, OpenAI, Gemini, Hugging Face, Mistral

ML/DL | PyTorch, TensorFlow, Fine-tuning, Model Evaluation, Inference Optimization

Languages | Python, SQL, R, JavaScript, TypeScript, HTML, CSS

Backend/Web | Flask, Django, FastAPI, React, Node.js, Next.js

DevOps/Tools | Git, Docker, AWS, PostgreSQL, MySQL, MongoDB

Libraries | pandas, NumPy, scikit-learn, PyTorch, Matplotlib

EDUCATION

M.S. Data Science

May 2025

George Washington University

Washington, DC

CCAS Dean's Award — \$13K Tuition Fellowship

M.S. Management

March 2021

The University of Tokyo

Tokyo, Japan

B.S. Management Information Systems

Aug 2017

Josai International University

Tokyo, Japan