

Xuhui Zhan

xuhui.zhan@outlook.com | (617) 251-4133 | linkedin.com/in/danielzhanaiml | xuhuizhan5.github.io

WORK EXPERIENCE

Applied Scientist, Treverse LLC
Nashville, TN

Sept 2025 – Present

- Built and owned Treverse's end-to-end Recommendation System for **100K+ users**, covering Databricks/Airflow jobs and pipelines for continue training and feature refreshing, Statsig A/B testing and serving at **p99 latency under 250 ms** for **under \$1.5K/month**.
- Architected and maintained FORGE, a Kubernetes-based ML platform on AWS with Terraform, Airflow, Argo CD, CodeBuild/ECR, S3 model artifacts, and Prometheus/Grafana observability.
- Developed a full-stack vision-based Presort system, from camera rig and trigger setup to Jetson edge backend, operator frontend, barcode recognition, pricing lookups, S3 reporting, and quality alerts; reduced labor cost by **50%** and raised throughput by **3x**.

Algorithm Engineer, Suzhou AGV Robot Co. Ltd.
Jiangsu, China

Jun 2022 – Apr 2023

- Automated ROS localization deployments and delivered a warehouse vision detection system across **30+ warehouses**.

RESEARCH EXPERIENCE

Graduate Research Assistant, Vanderbilt University
Multimodal Machine Learning; Supervisor: Tyler Derr

Jun 2024 – May 2025

- First-authored Inverse-LLaVA, a novel text-to-vision vision-language architecture using single-stage training with **0 alignment samples**; achieved MM-VET **31.2**, ScienceQA-IMG **67.84**, and MME cognition **328** (+27.2%).
- Built a graph-language model architecture for social graphs to generate textual node attributes from temporal interaction data; evaluated on Venmo and Amazon.

Lead AI Data Science Researcher, Vanderbilt University
Large Language Models; Supervisor: Ray Friedman

Oct 2023 – May 2025

- Built an LLM annotation system for negotiation transcripts, reducing annotation cost from **\$5,000** to **\$3** and improving human-AI agreement from **30%** to **80%**.
- Designed an agentic framework for LLM negotiators that injects population variance to simulate diverse subject pools.

Professional Research Assistant, Vanderbilt University
Computer Vision; Supervisor: Markus Eberl

Oct 2023 – Jan 2025

- Trained Vision Transformers on **10M images**, raising mortar classification accuracy from **60%** to **97%**; built provenance search that reduced analysis time from **months to minutes**.

SKILLS

Programming: Python, Go, SQL, C++, TypeScript, Rust

AI/ML: recommender systems, graph neural networks, computer vision, multimodal learning, large language models, LLM agents

Frameworks: PyTorch, TensorFlow, JAX, Hugging Face Transformers

Infrastructure: AWS, GCP, Databricks, Kubernetes, Airflow, Terraform, Docker, GitOps, Argo CD, Prometheus, Grafana

EDUCATION

Vanderbilt University

M.S. Data Science, Graduate Teaching Fellowship, GPA: 3.98/4.00

Aug 2023 – May 2025

Nashville, TN

Beijing Normal-Hong Kong Baptist University

B.S. Data Science, First Class Honours (Highest Distinction), GPA: 3.5/4.0

Aug 2018 – Jun 2022

Guangdong, China