Zijun (Brighton) Liu

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Seeking a Summer 2027 ML research internship - self-supervised learning | sequence models | LLM post-training

Education

University of California, San Diego - B.S. Astrophysics, Data Science minor | *Jun 2027* | **GPA 3.92** | Phi Beta Kappa
Applying to M.S. programs in CS / ML for Fall 2027; available for a Summer 2027 internship, Jun - Sep 2027.

Publications

Liu, Z., Ma, Y., Theissen, C. *What does self-supervision add to engineered features for stellar light curves?* Accepted at the ML4PS workshop at NeurIPS 2026.

Research

Self-supervised learning on stellar light curves | *First author, with Y. Ma and Prof. C. Theissen | 2026 - present* | code

- Pre-trained a **self-supervised** conv encoder (GRU latent prediction, **PyTorch**) on unlabelled TESS light curves.
- Evaluated frozen embeddings with linear probes on 10 tasks; multi-seed runs with bootstrap confidence intervals.
- Embeddings + 25 engineered features improved probes on **7 of 10 tasks**, beating end-to-end Conv1D and MLP.

KataGo x LLM - LLM post-training & evaluation | *Project lead, volunteer team | 2025 - present* | code | demo

- Post-trained **Qwen3-8B** (LoRA, **SFT -> GRPO**, HF TRL) on 302k engine-verified examples to play and explain Go.
- Built the evaluation: board-perception probe, top-k agreement with KataGo, refereed engine ladder.
- Stabilized **GRPO**: removed reward hacking, countered entropy collapse with DAPO clip-higher.

Deep-learning inference of stellar parameters | *ASTR 199, with Prof. C. Theissen | 2026* | report

- Built a two-stage network on ~1M rows of photometry from 7 catalogs; raised log g R^2 from 0.52 to 0.83.

Experience

Rothenberg Wealth Strategies - ML Research Intern | *Jan - Mar 2026, Jun - Sep 2026* | San Diego

- Ran **LightGBM** experiments with 1,000+-feature ablation, loss variants, Optuna sweeps and walk-forward validation.
- Built a multi-worker experiment runner (**1,000+ runs per sweep**) and a self-supervised temporal-conv VAE.

XView LLC - AI Engineer Intern | *Apr - Jun 2026* | Remote

- Built a 5-agent **RAG** pipeline (CrewAI, Chroma); prompt A/B and chunking evaluation cut factual errors by **~60%**.

Himiway Intelligent Technology USA - Data Science Intern | *Sep - Dec 2025* | Hybrid

- Trained and deployed an **XGBoost** model for store-location and inventory decisions.

Skills

ML: PyTorch, HF TRL, SFT / GRPO / LoRA, self-supervised learning, sequence models, LightGBM, XGBoost
Engineering: Python, C++, SQL | vLLM, llama.cpp, Docker, Linux, AWS, Git, Weights & Biases