

Fernando Liu Lopez

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SUMMARY

PhD Candidate in Mathematics at Rice University, specializing in noncommutative and quantum algebra, with strong experience in data science and machine learning. Proven record of high-quality teaching, research, and collaborative project leadership. Seeking positions in Data Science requiring strong quantitative or research skills.

EDUCATION

Rice University, *Doctor of Philosophy* in Mathematics (GPA = 3.98), expected 2025-2026.

Amherst College, *Bachelor of Arts, magna cum laude* in Mathematics and Philosophy (GPA = 3.89), 2018.

SKILLS & CERTIFICATIONS

- Programming Languages & Platforms: Python, SQL, LaTeX, Github, Microsoft Office, Excel, Tableau, Power BI.
- Libraries: numpy, scipy, pandas, scikitlearn, matplotlib, XGBoost, PyTorch, SHAP.
- Deployment: streamlit, Containerization (Docker), Cloud environments (AWS SageMaker).
- Quantitative: Data Analytics, Statistics, Probability, Algorithms, ML, Time Series Analysis, Deep Learning.
- Soft Skills: collaboration, pattern recognition, creative thinking, problem solving, public speaking.
- Certifications: The Erdős Institute Data Science [[CERTIFICATION 1](#)], [[CERTIFICATION 2](#)] and Deep Learning.

WORK EXPERIENCE

Doctoral Researcher, Instructor of Record **Rice University**: Houston, TX

- Conducted mathematical research in quantum algebra, published in the *Journal of Algebra*, Volume 661 [[LINK](#)].
- Instructed 3 undergraduate courses on Differential Equations. Received multiple awards for exceptional teaching skills.
- Assisted in teaching: Calculus (I, II, III), Differential Equations, Honors Linear Algebra, and Graduate Algebra.

Quantitative Fellow **Amherst College Quantitative Center**: Amherst, MA

- Provided personalized tutoring for upper division math courses including Linear Algebra, Abstract Algebra, Number Theory, Real Analysis, p-adic Analysis, and Galois Theory.
- Record attendance and performance reviews used to guarantee funding for subsequent years.

SELECTED PROJECTS

TotallyMakesScents – May - July 2025 [[APP](#)], [[SLIDES](#)], [[EXECUTIVE SUMMARY](#)], [[GITHUB](#)]

- Developed a perfume recommender system capable of generating recommendations from user queries.
- Created web scraping tools and training data for continued pre-training and fine-tuning of LLMs.
- Created app and recommendation interface through Streamlit, app logo, and dashboards through Tableau for data analysis.

Grocery store sales prediction – December 2024 [[LINK](#)] [[GITHUB](#)]

- Analyzed data from Corporacion Favorita grocery stores to construct predictive models for sales forecasting.
- Combined my team's mathematical and data analytic findings to fine-tune an ensemble model best suited for the project's KPIs. Improved model performance by 20%, earning a spot in a Kaggle top 100 leaderboard.

If You're Single...You're Probably a Democrat - May 2024 [[LINK](#)] [[GITHUB](#)]

- Analyzed county-level demographic and electoral data to establish how voter demographics affect voting behavior.
- Found, merged, and cleaned data from multiple sources to construct a dataset suited for inference within a very short timeframe.

AWARDS

2024 - Graduate Teaching Award for Independent Instruction, Rice University.

2023 - Excellence in Teaching Award, Department of Mathematics, Rice University.