Ritik Jain

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EDUCATION

University of Connecticut
Storrs, Connecticut
- *Doctor of Philosophy in Mathematics* — Aug. 2024 – Present
Master of Science in Mathematics; GPA: 3.9 — Dec. 2025

- **Fordham University** — New York, New York
Bachelor of Science in Applied Mathematics, summa cum laude; GPA: 3.97 — Aug. 2021 – May. 2024

PUBLICATIONS

- **R. Jain**, H.-B. Moon, and P. Wu, "Distribution of the number of zeros of polynomials over a finite field," *Involve* 18-4 707-718 (2025). Preprint: arXiv:2308.14580. DOI: doi.org/10.2140/involve.2025.18.707

- **R. Jain**, "The number of solutions of a random system of polynomials over a finite field," (2024) Preprint: arxiv:2409.06866.

TEACHING

University of Connecticut

- Calculus I, Teaching Assistant — Spring 2026

- Calculus I, Teaching Assistant — Fall 2025

- Math for Business and Economics, Teaching Assistant — Summer 2025

- Calculus II, Teaching Assistant — Spring 2025

- Math for Business and Economics, Teaching Assistant — Fall 2024

PROJECTS

- **Neumann-prover**: Developed a state-of-the-art autoformalization pipeline powered by 20+ foundation models (OpenAI, Anthropic, etc.). Leveraged dynamic model orchestration and compiler-in-the-loop structured feedback mechanisms to successfully formalize complex theorems, advancing automated reasoning and autoregressive theorem proving.
- **RAG-prover**: Embedded mathlib4, a library of over 100k formalized theorems, into Euclidean space using OpenAI's text-embedding-3-large. Leveraged recent advancements in ML, including FAISS (Facebook AI Similarity Search), for ultra-fast, high-dimensional retrieval. Seamlessly integrated embedding-based retrieval into a Retrieval-Augmented Generation (RAG) pipeline, delivering a significant performance boost in dynamically generating formal proofs in Lean.

PROFESSIONAL EXPERIENCE

- **Rogo** — New York, NY
Intern — August 2022 – May 2023
  - Supported reporting and exploratory analysis with Python; performed market analysis driven by statistical methods and presented research weekly to founders as the sole intern at the company.
  - Prepared investor pitch decks and a five-page strategy memorandum read by founders; cleaned and organized datasets to support model training; produced concise analyses for leadership.

- **Steel Key Capital** — New York, NY
Intern — January 2022 – August 2022
  - Used Python to create an optimized in-house cryptocurrency analysis pipeline using live data, detecting lucrative pairs trading opportunities using correlation matrices.
  - Analyzed financial data for over 10 cryptocurrencies to craft delta-neutral investment strategies for a portfolio valued at over 10 million dollars, guiding investments of valued at $50,000.
  - Delegated tasks to 6 interns, including investment reports and data analysis.

SKILLS

- **Technical Proficiencies**: Python, Github workflows, Jupyter, C++, NumPy, SciPy, PyTorch, pandas.

- **General**: Statistics, Mathematics, Machine Learning, Data Science.