Rowan A. Hennessy

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Education

Columbia University, School of Engineering and Applied Science — New York, NY
MS, Operations Research — *Incoming Aug. 2025*

Cornell University, College of Arts and Sciences — Ithaca, NY
BA, Computer Science & Mathematics — *Aug. 2021 - May 2025*

Relevant Computer Science Courses: Programming I-IV, Analysis of Algorithms, Machine Learning, Information Retrieval, Probability in Computing

Relevant Math Courses: Calculus I-IV, Linear Algebra, Statistics, Probability Theory, ODEs, PDEs, Stochastic Calculus, Financial Engineering

Professional Experience

Finz — Remote
Financial Technologies Intern — *Jan. 2025 - Present*

- Maintained a MySQL embedded database of user transactions to support predictive modeling of company income
- Developed and fine-tuned machine learning algorithms to analyze transaction data for cash flow prediction
- Collaborated with cross-functional teams to seamlessly integrate predictive models into user interface
- Conducted market research to predict future costs of products for cash flow analysis

Cornell University — Ithaca, NY
Teaching Assistant & Consultant — *Jan. 2023 - Present*

- Assisted in designing and implementing class assignments for Cornell CS 2110, 3110, and 4300
- Led weekly recitations for advanced programming courses and mentored project teams, ensuring quality projects
- Developed optimized solution code for benchmarking runtimes and assisted in overhaul of course materials
- Tutored students individually and in group settings, maintaining professional relationships with peers
- Reviewed and merged pull requests to enhance autograder systems on AWS, improving performance and coverage

YMCA Camp Widjiwagan — Ely, MN
Advanced Trail Staff — *Summers 2022/3/4*

- Led wilderness trips throughout North America, each 2-5 weeks long, maintaining safety and health of campers
- Planned and led 24-night canoe trip totaling 353 miles from Ontario, Canada to Lake Superior, Minnesota
- Built professional relationships and improved communication abilities via co-led trips and supervisor relationships
- Demonstrated leadership and communication capabilities, achieving promotion each summer

Technical Projects

Stochastic PDEs and Optimized Probabilistic Modeling for Finance — *Jan. 2025 - Present*

- Collaborating with a third-year Applied Math PhD candidate to research the use of graduate mathematics in finance
- Read and reviewed papers on the use of stochastic calculus and optimal transport in option pricing and hedging
- Implemented Monte Carlo simulations to predict expected value of portfolio at varying stopping times
- Preparing a presentation for the Cornell Mathematics department scheduled for May 20, 2025

Dynamic MasterClass Chatbot — *Jan. 2025 - Feb. 2025*

- Designed an agentic chatbot model leveraging LangChain & REST APIs for dynamic access to MasterClasses
- Implemented FAISS document embeddings to enable efficient cosine similarity searches for context-aware responses
- Developed API endpoints, allowing certified users confidential access while maintaining conversation memory

PoliPredictor — *Feb. 2024 - May 2024*

- Collaborated with a team of four others to design an ad-hoc information retrieval system in Python with a Flask UI
- Implemented sentiment analysis and combined SVD vectorizing with cosine similarity for efficient data retrieval
- Integrated Boolean-search and informal measurements to allow queries based on political level, party, and region
- Developed a Python tool to scrape and store approximately 1,000 tweets from 500 Twitter accounts
- Designed PyDantic classes for rapid data validation and integration into JSON schema

RISK in OCaml — *Feb. 2023 - May 2023*

- Collaborated in a team of four to implement the board game RISK using immutable data structures for type safety
- Independently developed a command-line GUI with the ANSITerminal library, enabling dynamic map integration

Skills Summary

- **Programming Languages:** Python, SQL, Java, C, LaTeX
- **Developer Tools:** Git/GitHub, MySQL, Amazon AWS, Linux, VS Code
- **Frameworks & Libraries:** Flask, TensorFlow, PyTorch, MatPlotLib, Node.js, Django