Ishaan Goel

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Summary

Mathematics researcher and AI developer with deep quantitative foundations. Seeking to apply expertise in generative AI and stochastic modeling to solve complex problems in Natural Language Processing and Quantitative Finance.

Education

Illinois Institute of Technology (3.73/4.00)　　　　　　　　　　　　　　　　　　　Aug 2022 – Present
M.A.S. Artificial Intelligence
Dual B.S. Applied Mathematics and Data Science, Finance Minor
Heald and STEM+ Scholarships Recipient

Relevant Coursework

Math: Probability, Linear Optimization, Stochastic Processes, Graph Theory, Monte Carlo Methods in Finance, SPDEs, Real Analysis, Abstract Algebra, Combinatorics, Dynamical Systems, Functional Analysis (audit)

AI/ML: Machine Learning, Statistical Learning, Natural Language Processing, Artificial Intelligence, Data Mining, Deep Learning, Information Retrieval, Algorithms, Database Organization, Game Theory (audit)

Finance: Economics of Capital Investments, Principles of Economics, Accounting

Planned (Spring 2026): Big Data Technologies, Advanced AI, Quantitative Risk Management, Financial Derivatives

Experience

Illinois Institute of Technology, Department of Applied Mathematics　　　　　　　　　Chicago, IL
Research Assistant under Dr. Igor Cialenco, NSF-funded research　　　　　　　　　Aug 2024 – Present
Applying concepts from RL, stochastic (optimal) control, and game theory to model groundwater rights distribution and assess policy impacts for water markets by integrating mathematical theory with hydrological and economic data.

Research Assistant under Dr. Michael Pelsmajer　　　　　　　　　　　　　　　　　　May 2025 – Present
Making a Markov Chain sampler in Python to generate uniform random hypergraphs with the same k-core sequences.

PeopleStrong Technologies Ltd.　　　　　　　　　　　　　　　　　　　　　　　Gurugram, India
Intern　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　Jun 2025 – Jul 2025
Built a scalable RAG-based system for Automated Ticket Resolution, enabling document-grounded Q&A for 1,000+ employees and reducing index testing time by over 200x (weeks to hours). Gained hands-on experience in deploying production-ready agentic AI systems and accelerating iteration cycles through automation and containerization.

Intern　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　Jul 2024 – Jul 2024
Designed and deployed a scalable LLM-based chatbot with an agentic architecture integrating 5+ RAG systems, validated via A/B testing and approved for company-wide rollout.

Skills

Programming: Python, R, Julia, C++, Java, LaTeX, HTML, CSS, SQL, Mathematica, MATLAB

Python Stack: PyTorch, scikit-learn, NumPy, pandas, matplotlib, NetworkX, PySpark

R Stack: tidyverse, caret, rpart, glmnet, e1071, keras

Spoken Languages: English, Hindi, Urdu, Mandarin Chinese, Spanish, Modern Standard Arabic, Punjabi

Others: Generative AI, Mathematical Finance, Operations Research, Stochastic Modeling, Discrete Mathematics

Projects

Natural Language Understanding Projects | *NLP, Python*　　　　　　　　　　　　Aug 2024 – Dec 2024
Implemented foundational NLP models from scratch: a probabilistic language model, Naive Bayes, and kNN.

Leadership Roles

President, Machine Learning at Illinois Institute of Technology (ML@IIT)　　　　　　Jan 2023 – Present
Scaled organization from small group to 250+ active participants, hosting workshops and speaker events on AI/ML.

Vice President, Society for Industrial and Applied Mathematics (SIAM) Chapter at IIT　　　Dec 2022 – Present
Spearheaded initiatives connecting students to research opportunities in applied mathematics by hosting professor talks and organizing networking events for students across multiple disciplines related to mathematics.