Ishaan Goel

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Summary

AI Researcher and developer with deep quantitative foundations, demonstrated success in architecting a multi-agent RAG system for a 1,000+ user enterprise. Seeking to apply expertise in generative AI and stochastic modeling to solve complex problems in NLP and computational finance.

Education

Illinois Institute of Technology (3.73/4.00)   Chicago, IL
Dual B.S. Applied Mathematics and Data Science   Aug 2022 – Present
Minor in Finance
Recipient of the Heald and STEM+ Scholarships
M.A.S. Artificial Intelligence   Aug 2024 – Present

Relevant Coursework

Math: Probability, Linear Optimization, Intro to Stochastic Processes, Graph Theory, Monte Carlo Methods in Finance
AI/ML: Machine Learning, AI Language Understanding, Data Mining, Data Preparation and Analysis
Enrolled: Information Retrieval, Deep Learning

Experience

Research Assistant   May 2025 – Present
Illinois Institute of Technology, College of Computing   *Chicago, IL*
- Developing a Markov Chain sampler in Python to generate uniformly random hypergraphs with prespecified k-core sequences.

Research Assistant   Aug 2024 – Present
Illinois Institute of Technology, Department of Applied Mathematics   *Chicago, IL*
Under Dr. Igor Cialenco, NSF-funded research
- Developing a stochastic mathematical framework for sustainable groundwater management under California's SGMA.
- Applying concepts from stochastic games and Nash equilibria to model groundwater rights pricing and assess policy impacts for global water markets.
- Designing computational algorithms for multi-stakeholder equilibrium analysis by integrating mathematical theory with hydrological and economic data.

Intern   July 2024
PeopleStrong Technologies Ltd.   *Gurugram, India*
- Developed and architected a chatbot for employee query management using Retrieval Augmented Generation (RAG) and LLMs, intended to serve over 1,000 employees.
- Designed an agentic architecture integrating 5+ specialized RAG systems, and performed A/B testing to validate the approach, leading to a planned company-wide deployment after presenting findings to leadership.

Projects

Natural Language Understanding Projects | *NLP, Python*   Aug 2024 – Dec 2024
- Built core NLP models from scratch, including a probabilistic language model, a Naïve Bayes classifier, and a kNN classifier.

Erdős Co-authorship Network | *Graph Theory, Python, NetworkX*   Feb 2023 – May 2023
- Analyzed a 500+ node co-authorship network, applying centrality measures to identify key researchers and reveal collaborative patterns.

Leadership Roles

President, Machine Learning at Illinois Institute of Technology (ML@IIT)   Jan 2023 – Present
Organized speaker events and workshops on cutting-edge AI techniques, increasing attendance eighteen-fold and fostering campus-wide collaboration on AI projects.

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.

Skills

Programming: Python, R, C++, Julia, Java, Mathematica, MATLAB, LaTeX, HTML, CSS, SQL
Python Stack: PyTorch, scikit-learn, NumPy, pandas, matplotlib, Streamlit
R Stack: tidyverse, caret, rpart, glmnet, e1071, keras