

Ishaan Goel

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Summary

Math and AI researcher and developer specializing in ML and NLP, with demonstrated success in designing a scalable RAG-based system for enterprise applications. Experience applying generative models. Globally adaptable, multilingual and aiming to pioneer generative AI solutions in NLP and/or finance applications.

Education

Illinois Institute of Technology (3.73/4.00)

Dual B.S. Applied Mathematics and Data Science
Minors in Computational Structures and Finance
Recipient of the Heald and STEM+ Scholarships
M.A.S. Artificial Intelligence

Chicago, IL
Aug 2022 – Present

Aug 2024 – Present

Relevant Coursework

Math: Probability, Linear Optimization, Intro to Stochastic Processes, Graph Theory, Monte Carlo Methods in Finance

CS: Data Structures and Algorithms, Machine Learning, AI Language Understanding

Other: Language Theory in NLP, Deep Technology Commercialization

Enrolled: Intro to Math Finance, Modern Methods in Discrete Applied Math, Data Preparation and Analysis

Experience

Research Assistant

Illinois Institute of Technology, Department of Applied Mathematics
Under Dr. Igor Cialenco, NSF-funded research

Aug 2024 – Present
Chicago, IL

- Developing a stochastic mathematical framework to address sustainable groundwater management, focusing on equitable water allocation and dynamic market regulations under California's SGMA.
- Applying concepts from stochastic games and Nash equilibria to model groundwater rights pricing, assess policy impacts, and support scalable, adaptable solutions for global water markets.
- Collaborating on interdisciplinary research by integrating mathematical theory with hydrological and economic data, while designing computational algorithms for multi-stakeholder equilibrium analysis.

Intern

PeopleStrong Technologies Ltd.

Jul 2024
Gurugram, India

- Developed a chatbot for employee query management using Retrieval Augmented Generation (RAG) architectures and Large Language Models (LLMs). The chatbot is intended to serve 1,000+ employees.
- Key accomplishments include designing an agentic chatbot architecture that integrates 5+ RAG systems, conducting A/B testing to evaluate RAG feasibility, researching LLM response evaluation, fine-tuning AI assistants, and employing prompt engineering for high-quality responses. Presented findings to company leadership, resulting in planned company-wide deployment.

Projects

AI Language Understanding Projects | NLP, Python

Aug 2024 – Dec 2024

- Developed models in Python including a Probabilistic Language Model, a Naïve Bayes Classifier and a KNN Classifier.

Leadership Roles

Vice President, Society for Industrial and Applied Mathematics (SIAM) Chapter at IIT

Dec 2022 – Present

Spearheaded initiatives connecting students with applied math opportunities. Connected students to research opportunities in applied mathematics by hosting professors to talk about their research.

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 8-fold. Expanded knowledge-sharing opportunities, fostering campus-wide collaboration on AI projects.

Skills

Programming/Markup: Python, R, Julia, Mathematica, MATLAB, Java, L^AT_EX, HTML, CSS, SQL

Libraries: NumPy, Matplotlib, pandas, BeautifulSoup; dplyr, ggplot2, caret

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