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) — 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

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

Other: Language Theory in NLP, Deep Technology Commercialization

Enrolled: Data Preparation and Analysis, Modern Methods in Discrete Applied Math, SPDEs

Experience

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 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 — Jul 2024
PeopleStrong Technologies Ltd. — 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

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. Expanded knowledge-sharing opportunities, 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 professors to talk about their research. Organized networking events for students in applied mathematics.

Skills

Programming & Markup: Python, R, Julia, Java, Mathematica, MATLAB, LaTeX, HTML, CSS, SQL

Python Stack: PyTorch, NumPy, pandas, Matplotlib, SciPy, scikit-learn, Streamlit

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

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