

# Ishaan Goel

+1 771-201-7576 | igoeldxb@gmail.com | linkedin.com/in/igoeldc/ | github.com/igoeldc

## 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

Minor in 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:** Machine Learning, AI Language Understanding, Data Mining, Data Preparation and Analysis

**Other:** Language Theory in NLP, Deep Technology Commercialization

**Enrolled:** Information Retrieval, Deep Learning

## 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

### Natural Language Understanding Projects | NLP, Python

Aug 2024 – Dec 2024

- Developed a probabilistic language model, a Naïve Bayes classifier, and a  $k$ NN classifier in Python from scratch.

## 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,  $\text{\LaTeX}$ , 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