

Karan Srivastava

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EDUCATION

MA, PhD in Mathematics University of Wisconsin-Madison	Expected 2025
Graduate Minor in Computer Science	
BSc. Mathematics University of Illinois at Urbana-Champaign	May 2020
Magna Cum Laude with Highest Distinction in Mathematics	GPA: 3.97/4
Study Abroad	Spring 2019
Independent University of Moscow	GPA: 3.87/4

RESEARCH EXPERIENCE

<i>PhD Work, University of Wisconsin-Madison and Wisconsin Institute for Discovery</i>	Aug 2020 – present
<ul style="list-style-type: none">Working on developing reinforcement learning agents that generate data for problems in pure mathematics.Developing graph convolutional network architecture for detecting hidden cliques in graph networks.Developed a novel method of reconstructing linear data robust to noise and published findings at the IEEE ISIT 2022. Slides, code, and paper can be found here.	

SELECTED PROJECTS

Erdős Institute Data Science Bootcamp	May 2022 – July 2022, Nov 2022 - Jan 2022
<i>CoverMyMed Copayment Prediction</i> <ul style="list-style-type: none">Developed and tested various machine learning models that reduce bias to predict copayment information based on patient history and drug formulary information with ~90% accuracy. Github link	
<i>What's Cooking? Cuisine Analysis</i> <ul style="list-style-type: none">Studied a Kaggle dataset on cuisines, used various clustering techniques to find similarities between cuisines based on ingredients, and developed random forest, linear SVC, and other machine learning models to achieve classification accuracies of ~ 85%. Github link	
University of Wisconsin	Aug 2022 - Dec 2022
<i>Causal Inference through Machine Learning</i> <ul style="list-style-type: none">Synthesized various advancements and implemented tests to experimentally demonstrate how machine learning methods can uncover causal relationships in synthetic and real-world data. Write-up link. Github Link.	

SKILLS

- Languages:** Python, Julia, Mathematica, C++, Java, Latex, R (basic), SQL (basic)
- Python Libraries:** Pandas, Scikit-Learn, Matplotlib, BeautifulSoup, Numpy
- Machine Learning:** Pytorch, Tensorflow, Keras, Reinforcement Learning, Graph Convolutional Networks
- OS and Platforms:** Bash, GitHub([ksrivastava1](#)), MacOS, Jupyterlab, VSCode, Linux computing clusters.

LEADERSHIP AND SERVICE

Undergraduate Mentor Program , University of Wisconsin-Madison	2022 – present
<ul style="list-style-type: none">Founded and organized a mentorship program that paired ~25 PhD mentors with undergraduates.	
Directed Reading Program , University of Wisconsin-Madison	2021 – present
<ul style="list-style-type: none">Organize a reading program that groups ~60 undergraduate math majors with PhD mentors every semester.Designed 3 projects in machine learning, graph neural networks, and algebraic geometry.	
Math Circle , University of Wisconsin-Madison	2021 – 2022
<ul style="list-style-type: none">Organized ~30 mathematical talks by faculty and PhD students for local middle and high schools.Designed a workshop in mathematical reasoning for 40 middle school students.	
Madison Experimental Math Lab , University of Wisconsin-Madison	2021 – present
<ul style="list-style-type: none">Helped organize ~15 undergraduate research projects with faculty and PhD mentors every semester.	
Teaching Assistant , University of Wisconsin-Madison	2020 – present

CERTIFICATES AND AWARDS

Institute for Foundations of Data Science Research Assistantship: \$10,000 Research Grant	Aug 2023 - Jan 2023
Erdos Institute Data-Science Bootcamp	May 2022 - July 2022
Campus-wide Exceptional Service Award: Awarded to 3/2300 Teaching Assistants	2022-2023
Departmental Exceptional Service Award: Awarded to 2/120 Math Dept. Teaching Assistants	2022-2023
Exceptional Teaching Award: Demonstrated excellence in teaching for 4 or more semesters	2020-2022
Edmund J. James Scholar: Awarded to top 15% of undergraduates campus-wide	2017-2020
Dean's List , University of Illinois at Urbana-Champaign	All semesters