KARAN SRIVASTAVA

Department of Mathematics
University of Wisconsin
480 Lincoln Dr.
Madison, WI, 53706

Email: ksrivastava4@wisc.edu
karansrivastava.com
July 2023

EDUCATION

University of Wisconsin-Madison — *Madison, WI*
Mathematics PhD — *2020-present*

University of Illinois at Urbana-Champaign — *Urbana-Champaign, IL*
BS Mathematics — *2016-2020*
Magna Cum Laude, Highest Distinction in Mathematics

Math in Moscow — *Moscow, Russia*
Study Abroad Program — *Spring 2018*

PUBLICATIONS

"A Perturbation Bound on the Subspace Estimator from Canonical Projections" (with Daniel Pimentel-Alarcon) IEEE ISIT 2022

CONFERENCES

IEEE International Symposium on Information Theory — *Espoo, Finland*
Presented an accepted publication — *June 2022*

TALKS

Using Reinforcement Learning for Generating Useful Combinatorial Data — *San Jose, CA*
IBM Research at Almaden — *July 2023*

A Perturbation Bound on the Subspace Estimator from Canonical Projections — *Espoo, Finland*
International Symposium on Information Theory — *June 2022*

An almost Impossible puzzle and group theory — *Madison, WI*
AMS Student Chapter Seminar — *June 2022*

Why people say "I can't do math" — *Park City, UT*
Presented an Ignite Talk at Park City Math Institute's Summer School. — *July 2019*
You can watch it here

AWARDS AND HONORS

IFDS Research Assistantship — *Institute for Foundations of Data-Science*
$10,000 Research Assistantship — *Fall 2023*

Campus-wide Exceptional Service Award — *University of Wisconsin*
Awarded to 3/2300 Teaching Assistants campus-wide — *2022-2023*

Departmental Exceptional Service Award — *University of Wisconsin*
Awarded to 2/120 Math Department Teaching Assistants — *2022-2023*
Exceptional Teaching Award — *University of Wisconsin*
Awarded to TA's demonstrating excellence in teaching — *2020-2022*
Edmund J. James Scholar — *University of Illinois*
Awarded to top 15% of undergraduates campus-wide — *2017-2020*
Dean's List — *University of Illinois*
Awarded every semester — *2016 - 2020*

ORGANIZATIONS AND OUTREACH

Directed Reading Program — *University of Wisconsin*
Organizer, Mentor — *Fall 2021-present*

Madison Math Circle — *University of Wisconsin*
Organizer — *Fall 2021-Summer 2022*

Madison Experimental Mathematics Lab — *University of Wisconsin*
Graduate Coordinator — *Spring 2022-present*

Undergraduate Mentor Program — *University of Wisconsin*
Co-Founder, Organizer, Mentor — *Spring 2022-present*

Grad Student Visit Day Panel — *University of Wisconsin*
Graduate Coordinator — *Fall 2021 - Present*

Graduate Peer Mentor Program — *University of Wisconsin*
Mentor and Organizer — *Fall 2022, 2023-2024*

TEACHING EXPERIENCE

Math 240: Introduction to Discrete Mathematics — *University of Wisconsin*
Teaching Assistant* — *Summer 2022, 2023*

Math 222: Calulus and Analytical Geometry II — *University of Wisconsin*
Head Teaching Assistant* — *Summer 2021, Spring 2022*

Math 211: Calculus — *University of Wisconsin*
Head Teaching Assistant* — *Fall 2021, 2022, Spring 2021, 2022*

Math 221: Calulus and Analytical Geometry I — *University of Wisconsin*
Teaching Assistant* — *Fall 2020*

*Awarded superior teaching assistant rating by the Department of Mathematics

OTHER RESEARCH EXPERIENCE

Illinois Gometry Lab *University of Illinois*
Undergrad Research Program
Advisor: Dominic Culver, Topic: Weierstrass equations of Elliptic Curves *Spring 2020*
Advisor: Susan Tolman, Topic: Sphere packings on Symplectic Manifolds *Fall 2018*

PROJECTS

University of Wisconsin Madison *Madison, WI*
Causal Inference and Machine Learning Project Fall 2022

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.

Erdös Institute *Ohio State University*
Data Science and ML Bootcamp / Project Fall 2022

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 Project presentation and code base can be found at this page.

Erdös Institute *Ohio State University*
Data Science and ML Bootcamp / Project Summer 2022

For the final project, worked with the "What's Cooking?" dataset from Kaggle. Used dimensionality reduction and clustering analyses to determine similarity between cuisines based on their ingredients.We worked on Random Forest, Linear SVC, and other classification models and achieved an accuracy of $\sim 80\%$. Project presentation and code base can be found at this page.