SARAH HELMBRECHT

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Education

New York University
New York City, NY | September 2023 – May 2025 (Expected) | M.S. in Mathematics
- Courses: Algebra I, Linear Algebra I, Linear Algebra II, Math Analysis I, Math Analysis II, Number Theory, Ordinary Differential Equations, Scientific Computing

Tulane University
New Orleans, LA | August 2020 – May 2023 | B.S. in Mathematics and Computer Science | GPA: 3.75 | Math GPA: 3.81
- Honors: Dean's List (5 semesters), Founder's Scholarship ($24,000 per year)
- Relevant Courses: Machine Learning, Artificial Intelligence, Data Science, Algorithms, Computer Science I-II, Complex Analysis I, Real Analysis I-II, Linear Algebra, Probability, Statistical Inference, Discrete Math, Applied Math, Calculus I-III

Work Experience

Linear Algebra Teaching Assistant
New York University / New York, NY / January 2024 – present
- Recitation leader for two sections of Linear Algebra, for a total of 65 students
- Lead weekly recitations; hold office hours; proctor and grade quizzes and exams

Private Math Tutor
November 2020 – present
- Tutor K-12 and college students in subjects ranging from Pre-Algebra to Calculus
- Built a good reputation with clients; able to sustain business using referrals

Calculus I Teaching Assistant
New York University / New York, NY / September 2023 – December 2023
- Recitation leader for four sections of Calculus I, for a total of 133 students
- Led weekly recitations; held office hours; proctored and graded quizzes and exams

Quantitative Finance Intern
Franklin Templeton – O'Shaughnessy Asset Management / Stamford, CT / May 2023 – September 2023
- Improved statistical risk model using probabilistic principal component analysis

Projects

Research Assistant
January 2023 – May 2023
- Helped Dr. Victor Moll prove non-elementary integrals in the Gradshteyn and Ryzhik table

Mathematics Senior Seminar Paper
August 2022 – May 2023
- Wrote an expository article on *A Decoding Approach to Reed-Solomon Codes from Their Definition* by Maria Bras-Amorós

Computer Science Capstone Project
August 2022 – May 2023
- Created a tutorial website to help computer science students better understand cryptocurrency and blockchain

Data Science Final Project
October 2022 – December 2022
- Created a GitHub website that demonstrates and explains the data science pipeline
- Used random forest regression to analyze which countries' music charts predicted fame among U.S. millennials

Skills, Talents, & Achievements
- Programming: Python, C++, C, Java, R, Matlab, LaTeX, SQL, HTML, Git
- Supervised Learning: linear and logistic regression, decision trees, random forest, k-nearest neighbors, SVM
- Unsupervised Learning: principal component analysis, k-means clustering