

SARAH HELMBRECHT

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Education

New York University

New York City, NY | September 2023 – August 2024 (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

Greeter

Houston's / New Orleans, LA / June 2022 – August 2022

- Greeted and seated guests, managed rotation, served drinks and appetizers, answered phones, and supported servers

Hostess

Jack Allen's Kitchen / Austin, TX / June 2018 – August 2021

- Greeted and seated guests, managed rotation, answered phones, provided table updates and menu counts to kitchen, cleaned lobby and bathrooms

Projects

Research Assistant

January 2023 – May 2023

- Helped Dr. Victor Moll prove the 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

Activities and Community Service

Sorority Member and Fundraising Director

Kappa Alpha Theta, Alpha Phi Chapter / New Orleans, LA / January 2021 – May 2023

- Member of social fraternity
- Fall 2021 Fundraising Director: the cabinet officer responsible for planning chapter fundraisers

Chorus Member

Tulane University Chorus / New Orleans, LA / January 2021 – May 2022

- Mixed chorus; rehearsed weekly; held performances at the end of each semester

Elementary School Aftercare Volunteer

Lycée Français de la Nouvelle-Orléans / New Orleans, LA / August 2022 – December 2022

- Supervised aftercare program for elementary students

Sex Education Research Volunteer

Louisiana Public Health Institute / New Orleans, LA / January 2021 – May 2021

- Assisted with research on sex education curricula across the state of Louisiana

Council Member

Community Action Council of Tulane University Students / New Orleans, LA / August 2020 – December 2020

- Freshman council; participated in weekly discussions about service and social justice in the New Orleans community

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