

Nadir Hajouji, PhD

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SUMMARY

Mathematics PhD with 10+ years experience in mathematics, research and coding. Natural problem solver and quick learner, having worked on projects in various areas ranging from cryptography to string theory to marine science. Skilled at making technical mathematics accessible to a wide range of learners, and equally at home with the applied and computational side of the subject.

EDUCATION

University of California, Santa Barbara, PhD and MA in Mathematics 2020
Specialization: *Algebraic Geometry, Elliptic Curves, Applications to String Theory*

Reed College BA with major in Mathematics 2013

WORK EXPERIENCE

Quome 2024-25
Senior Data Scientist

- Designed and implemented agents that evaluate various aspects of LLM-generated applications
- Used state-of-the-art research to improve generation and evaluation of apps using LLMs

University of California, Santa Barbara

Lecturer 2020-22

- Taught 3 classes per quarter, with sizes ranging from 30 to 300 students
- Classes include linear algebra (lower and upper division), vector calculus, calculus for social sciences

REU Mentor Summer 2019

- Designed and supervised REU project on elliptic curves for a group of 4 students
- Prepared and taught minicourse to get students ready to do research on modern mathematics
- Gave additional presentations to students on related skills, e.g. using LaTeX, giving talks, etc.

Instructor of Record Summer 2018

- Taught two summer sections of *Calculus for the Social Sciences*

Teaching Assistant 2014-20

- Assisted professors with instruction of lower division or upper division math courses
- Duties included leading small sections, holding office hours, grading exams and homework

SELECTED PROJECTS

[elliptic-curves.art](#) 2022–Present

- Multifaceted project related to understanding, visualizing and illustrating elliptic curves.
- Obtained new mathematical results, as well as new [visualizations](#) of elliptic curves over finite fields.
- Led to multiple [well-received](#) papers, as well as artwork that will be displayed at the [ICM 2026](#).

“Wonderpus Octopus” (As part of New Atlantis Fellowship Program/Erdo Deep Learning Boot Camp) 2024

- Trained neural networks to model relationship between chlorophyll and various biogeochemical features
- Our analysis provided useful insight for dealing with observed changes in chlorophyll (e.g. iron fertilization)
- **Top 5 Project** in [Erdo Institute Spring 2024 Deep Learning Bootcamp](#)

Recipe recommender (As part of Erdo Data Science Boot Camp) 2024

- Built a recommendation engine that suggests recipes that are tailored to a user’s known preferences
- Combined sentence transformer and matrix factorization model to find most relevant recipes given a user query
- **Top 5 Project** in [Erdo Institute Spring 2024 Data Science Bootcamp](#)

LEADERSHIP/MENTORING

Erdo Institute 2024-

Project Mentor and Teaching Assistant

- Provided mentorship on (award winning) data science projects on a variety of topics.
- Assisted fellow PhDs during weekly problem solving sessions on data science/machine learning topics.

University of California, Santa Barbara

Directed Reading Program Mentor 2018-20

- Held weekly meetings with undergraduates to guide them through readings on advanced math topics

PAPERS

[Elliptic Curves and the Hopf Fibration](#) 2025

[Supersingular Isogeny Graphs from Algebraic Modular Curves](#) 2023

[Modular Curves and Mordell-Weil Torsion in F-theory](#) 2019

CERTIFICATES

[Erdo Institute: Deep Learning Bootcamp - Summer Cohort](#) 2024

[Erdo Institute: Data Science Bootcamp - Spring Cohort](#)

2024

[Coursera: Cryptography I](#)

2023