# **Emil Geisler**

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## **EDUCATION**

- 2023 Ph.D. Mathematics, University of California, Los Angeles (advisor: TBD)
- 2019 2023 Honors B.S. Mathematics, University of Utah, summa cum laude.
- 2019 2023 Honors B.S. Computer Science, University of Utah, summa cum laude.

## **Research Interests**

Algebraic number theory, representation theory.

#### - Achievements

- 2019 2023 Putnam Competition three-time top score at U of U with scores of 30, 28, and 39, with national ranks of 276th, 225th, and 148th respectively (2019, 2021, 2022).
  - 2022 GRE Mathematics Subject Test 910, 94th percentile.
  - 2023 Kahlert SoC Outstanding Undergraduate Researcher Award awarded to a single CS student annually for excellence in undergraduate research.
- 2019 2023 Intermountain Math Competition 1st Place at the University of Utah (except for 2020 competition canceled due to the COVID pandemic).
  - 2019 U of U Eccles Scholarship Recipient Highly competitive and distinguished University of Utah scholarship.
  - 2019 AP State Scholar Award (most AP tests passed throughout High School in Utah): 20 AP tests, 4.65 average score.
  - 2019 National Merit Scholar Finalist and Scholarship Recipient.

## - UNDERGRADUATE RESEARCH EXPERIENCES

 2020 - 2024 Numerical Results in Representation Stability. Research project on the representation stability properties of the cohomology of complex configuration space. Developed an algorithm yielding new computational results of stable coefficients. Topic of Mathematics honors thesis.
2022 - 2023 Variable Stretch Textures.

Research project in graphics to simulate varying surface elasticity by modifying texture coordinates in real-time. Topic of Computer Science honors thesis.

2022 Park City Math Institute: Number Theory Informed by Computation.

- 2021 UC Davis Summer Math REU: Topological Data Analysis on Viral Evolution. Studied the effectiveness of persistent homology in detecting recombination events in RNA viruses through simulation.
- 2020 2021 Tensor Decomposition for Convolutional Neural Network Compression. Research project to investigate novel techniques for CNN compression with CP decomposition.
  - 2020 The University of Utah Math Pre-REU: Symmetry, Randomness, and Computation.

# Speaking and Presentations

- 2023 Complex dynamics and related topics, 20 minute research presentation. University of Utah.
- 2023 Math for all, poster presentation. University of Utah.

## TEACHING

## UNIVERSITY OF CALIFORNIA LOS ANGELES, Teaching Assistant

- 2025 PIC 10A: Introduction to Programming<sup>\*</sup>.
- 2024 MATH 33A: Linear Algebra and Applications PIC 10A: Introduction to Programming<sup>\*</sup>.
- 2023 PIC 16A: Python with Applications  $1^{\dagger}$ .

# PUBLICATIONS AND PREPRINTS

1. Computations of Stable Multiplicities in the Cohomology of Configuration Space. arXiv:2411.11337, 2024.

 $^{*}c++$  $^{\dagger}python$