Aidan Hennessey

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Education

2021 – Brown University
Sc.B. Math, A.B. Computer Science

2017 – 2021 Chelmsford High School, GPA 4.2/4.0

Research Interests

Number Theory, Geometry, Combinatorics

Papers

1. Many-Twist Möbius Bands With Small Aspect Ratios, *Comptes Rendus*, November 2024.

Preprints

2. Computing Mod-5 Galois Images of Torsion on Abelian Surfaces, joint with Andy Zhu and Mathilde Kermorgant. In preparation.
1. Tree and Tripod Nim arXiv:2401.07943

Talks

October 2024 Galois Representations from Torsion of Abelian Surfaces, Brown Undergraduate Math Colloquium. Notes.

August 2024 Galois Representations from 5-Torsion of Abelian Surfaces, Young Mathematicians' Conference. Abstract (page 11).

March 2024 Many-Twist Möbius Bands, Brown University's Symposium for Undergraduates in the Mathematical Sciences (SUMS). Abstract.

February 2024 Nim Arrays and Tripod Nim, Brown Undergraduate Math Colloquium. Slides.

Notable Mathematics Coursework[1]

4 semesters of algebra (2 undergrad, 2 grad), 3 semesters of number theory (1 undergrad, 2 grad), 3 semesters of topology (1 undergrad, 2 grad), graduate algebraic geometry, real analysis, graduate complex analysis, applied PDEs, calculus on manifolds, differential geometry, information theory, graph theory.

Selected grants and awards

April 2024 Henry Parker Manning Prize, $300

June 2023 Brown Undergraduate Teaching and Research Award (UTRA), $2500

[1] to be completed by graduation

Math Instruction

Brown University

Spring 2024 TA, Math 1580: Cryptography
Fall 2023 TA, Math 1530: Abstract Algebra

Varsity Tutors

2023 – 2024 Competition Math Tutor (AMC 10/12)

Chelmsford High School

2017 – 2021 Peer Tutor

Mathnasium of Acton

2020 AMC 8 Workshop Instructor
2020 Tutor (Prealgebra through Calculus)

Notable Programming Experience

Summer 2024 Summer research in computational arithmetic geometry. The end result of this project was an over 1000 line program written in the C-based computer algebra language Magma.
Summer 2023 Summer research in combinatorics, heavily reliant on numerical experiments in Python.
Fall 2022 Systems Programming course in C, including networks and parallel computing.
Spring 2022 Data Structures and Algorithms course in Java
Spring 2022 Computer Vision course featuring heavy use of Python, specifically libraries NumPy and Tensorflow. Culminated in final project, viewable here.

Math Competition Performance

2022 – 2023 **Putnam**
Score, 2023: 24
Score, 2022: 9

2016 – 2021 **AIME**
5-time participant