

Daniel Y. Hwang

Doctoral Candidate in Mathematics

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EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY

ATLANTA, GA

Ph.D. in Mathematics

Expected 2027

- Cumulative GPA: 3.96
- Research interests: algebraic and geometric combinatorics, (weighted) Ehrhart theory
- Thesis “Dreaming With A Broken Ehrhart: The Weighted Ehrhart Theory of Smooth Polytopes, Alcedo Polytopes, and Graphical Zonotopes” in progress under Josephine Yu.
- Related Coursework: Enumerative Combinatorics, Algebraic Geometry, Abstract Algebra
- Graduate Assistance in Areas of National Need (GAANN) Fellow 2025 to 2027, Georgia Tech School of Mathematics and U.S. Department of Education

DUKE UNIVERSITY

DURHAM, NC

B.S. in Mathematics and Computer Science, Graduation With Distinction

2022

- Cumulative GPA: 3.864
- Completed senior thesis “Analyzing the bistability of the minimally bistable ERK network using the discriminant locus” under Margaret Regan.
- Related Coursework: Database Systems, High Dimensional Data Analysis, Computer Vision
- North Carolina Math Scholar 2018, Full-Tuition Scholarship.

EMPLOYMENT HISTORY

GEORGIA INSTITUTE OF TECHNOLOGY

ATLANTA, GA

Graduate Teaching Assistant (TA)

August 2022 – Present

- Facilitated weekly discussion sections for 30-40 students in classes such as Linear Algebra.
- Graded and proctored exams, answered questions during office hours and on Piazza.
- Served as Head TA: managed a team of 10-15 TAs; managed the workflow of 4 lead instructors, including faculty and postdocs, who taught a total of 600 undergraduate students.

ZUSE INSTITUTE BERLIN

BERLIN, DE

Student Researcher

June 2025 - August 2025

- Participated in the Graduate-level Research in Industrial Projects for Students internship.
- Created a tool in Python that provides and visualizes useful statistics about the constraint matrix of a linear program, see github.com/danielyhwang/GRIPS-Matrix-Visualization.

LOS ALAMOS NATIONAL LABORATORY

LOS ALAMOS, NM

Student Researcher

June 2023 - September 2024

- Performed research under Laura Monroe on maximal sets of constructions of edge-disjoint spanning trees on star-product networks and fully homomorphic encryption schemes.

DUKE UNIVERSITY

DURHAM, NC

Undergraduate Teaching Assistant

August 2019 - May 2022

- Facilitated weekly discussion sections, provided feedback on recitation worksheets.
- Designed and set up Java programming assignments, configured and maintained autograder.

RESEARCH PUBLICATIONS

JOURNAL ARTICLES

- [1] D. Hwang, J. Whidden, and J. Yu, “Computing parametric weighted ehrhart polynomials of smooth polytopes,” 2025, Accepted for FPSAC 2026 Proceedings. arXiv: 2511.09744 [math.CO]. [Online]. Available: <https://arxiv.org/abs/2511.09744>

CONFERENCE PROCEEDINGS

- [1] K. Isham, L. Monroe, K. Lakhotia, A. Dawkins, D. Hwang, and A. Kubicek, “Edge-disjoint spanning trees on star products,” in *2025 IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, 2025, pp. 309–321. DOI: 10.1109/IPDPS64566.2025.00035

AWARDS

ACADEMIC AWARDS AND ACHIEVEMENTS

2024 **David L. Brown Fellowship**, Georgia Tech School of Mathematics.

2019 **Putnam Contest Top 500**, Duke University.

TEACHING AWARDS

2025 **Thank-A-Teacher Award**, Georgia Tech Center for Teaching and Learning.

2022 **Rebecca DeNardis Memorial Award**, Duke Computer Science.

SERVICE AWARDS

2025 **FESTA (Community Service) Fellowship**, Georgia Tech School of Mathematics.

2022 **Excellence in Community Service Award**, Duke Math.

SERVICE

2026 **Student Organizer and Project Mentor** for Georgia Tech School of Mathematics Research Experience for Undergraduates (REU) Program.

2026 **Mentor** for Georgia Tech Directed Reading Program.

2026 **Graduate Council Member** for Georgia Tech School of Mathematics.

2025 **Graduate Student Representative** for Georgia Tech School of Mathematics.

2024 **Mentor** for Georgia Tech Directed Reading Program.

2024 **Lead Organizer** for Georgia Tech High School Math Day.

2022 **Student Member** for Duke Math DEI Committee.

2021 **Lead Organizer** for Duke Math Meet.

INVITED CONFERENCES

(*) indicates Poster, (**) indicates Talk

2026 AMS Sectional Fall 2026 at Kennesaw State University, Kennesaw, GA. (**)

2026 Formal Power Series and Algebraic Combinatorics at University of Washington, Seattle, WA. (*)

2026 AMS Sectional Spring 2026 at Georgia Southern University, Savannah, GA. (**)

2025 Triangle Lectures in Combinatorics Fall 2025 at Duke University, Durham, NC. (*)

2025 Arbeitsgemeinschaft on Combinatorial Hodge Theory, Oberwolfach, Germany.

2025 Graduate-level Research in Industrial Projects for Students Project Presentation, Berlin, DE. (**)

2025 ACD Workshop at Institute for Pure and Applied Mathematics, Los Angeles, CA. (*)

2024 Chesapeake Large-Scale Analytics Conference, Annapolis, MD. (*)

2024 Ultrасcale Systems Research Center Student Symposium, Los Alamos, NM. (*)
2024 Encuentro Colombiano de Combinatoria at Universidad del Cauca, Popayán, Colombia.
2024 Georgia Tech Student ACO Seminar, Atlanta, GA. (**)
2024 Georgia Tech Student Algebra Seminar, Atlanta, GA. (**)

SKILLS & INTERESTS

Technical Python, SageMath, LaTeX, Java, GitHub, Full-stack web development, Macaulay2
Language Fluent in English, beginner conversational ability in Spanish and Korean