

ALEX DUNBAR

CONTACT

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EDUCATION

EMORY UNIVERSITY

- Ph.D., Mathematics (Expected 2025)
- Entered Candidacy
- Advisors: Victoria Powers (Emory University), Greg Blekherman (GA Tech)

RICE UNIVERSITY

- B.S., Mathematics, *Cum Laude* (2020)
- B.A., Computational and Applied Mathematics, *Magna Cum Laude* (2020)
- Minor: Statistics

RESEARCH

Interests: Applied Algebraic Geometry, Real Algebraic Geometry, Optimization, and Machine Learning

PUBLICATIONS AND PREPRINTS

1. “Relaxations and Duality for Multiobjective Integer Programming” with Saumya Sinha and Andrew J. Schaefer, Submitted.

CONFERENCE PRESENTATIONS

2. “An Alternating Minimization Algorithm for Regression with Tropical Rational Functions” – Computational, Combinatorial, and Applied Algebraic Geometry 2022 (CCAAGS-22), Poster Session
1. “Relaxation and Duality for Multiobjective Integer Programming” – INFORMS Annual Meeting 2020, Undergraduate Operations Research Prize Session A

SEMINAR TALKS

1. “Tropical Rational Regression and ReLU Network Initialization” – Computational and Data Enabled Science Seminar, Emory University, 11/3/22

TEACHING EXPERIENCE

- Emory University
 - MATH 111: Calculus 1, Fall 2022
 - MATH 221: Linear Algebra, TA, Spring 2022
 - MATH 315: Numerical Analysis, TA, Fall 2021

- MATH 315: Numerical Analysis, Grader, Spring 2021
- MATH 361: Mathematical Statistics I, Grader, Fall 2020
- Rice University
 - STAT 405: R for Data Science, Grader, Fall 2018

ORGANIZATION

- Emory Math Directed Reading Program Steering Committee (Spring 2022 - present)

ACTIVITIES

- MSRI-BIRS Graduate Summer School on “Sums of Squares Methods in Geometry, Combinatorics and Optimization” participant (Summer 2022)
- Moncrief Summer Undergraduate Internship, University of Texas at Austin, (Summer 2019)
 - Project: Dynamic Mode Decomposition and Koopman Spectral Analysis
 - Advisor: Chandrajit Bajaj

OUTREACH

- Emory Math Directed Reading Program Mentor
 - Concrete Algebra, 1 student (Fall 2022)
 - Computational Algebra Part II, 2 students (Spring 2022)
 - Computational Algebra Part I, 2 students (Fall 2021)
- STEM Enhancement Summer Intern (Summer 2018)
 - CSTEM Teacher & Student Support Services, Inc. Houston, TX
- AmeriCorps VISTA (Summer 2017)
 - STEMup Baton Rouge, Baton Rouge, LA

HONORS AND AWARDS

INFORMS Undergraduate Operations Research Prize Finalist	2020
NCAA CoSIDA Academic All-District Track and Field District 7	2020
Phi Beta Kappa Rice University Chapter	2020
C-USA Academic All-Conference Cross Country Team	2019
Dr. Hubert E. Bray Scholar Athlete of the Year	2019
Louis J. Walsh Scholarship	2018-2019

OTHER

- Division 1 Cross Country and Track & Field (Fall 2016 - Spring 2020)
 - Rice University Athletics
 - XC/5,000m/10,000m
 - Team Peer Academic Advisor (Fall 2018 - Spring 2020)