

Daniel Hathcock

PHD CANDIDATE IN ACO · CARNEGIE MELLON UNIVERSITY

637 Maryland Ave, Pittsburgh, PA 15232

📞 (+1) 303-834-2557 | ✉ dhathcoc@andrew.cmu.edu | 🏠 danielhathcock.github.io

Education

Carnegie Mellon University

PH.D. CANDIDATE IN ALGORITHMS, COMBINATORICS, AND OPTIMIZATION (ACO)

Pittsburgh, PA

Aug. 2020 - pres.

- Advised by Professor R. Ravi.
- Research in approximation algorithms and network design.
- NSF Graduate Research Fellowship recipient.

Georgia Institute of Technology

B.S. IN COMPUTER SCIENCE, MINOR IN MATHEMATICS

Atlanta, GA

Aug. 2016 - May. 2020

- Concentrations in Theory and Intelligence.
- Undergraduate Thesis: Enumerating Acyclic Orientations, advised by Professor Prasad Tetali

Research Publications

Improved Approximation Algorithms for Steiner Connectivity Augmentation Problems

WITH MIK ZLATIN

2023

Arxiv Preprint: arxiv.org/pdf/2308.08690.pdf

One Tree to Rule Them All: Poly-Logarithmic Universal Steiner Tree

WITH COSTAS BUSCH, DA QI CHEN, ARNOLD FILTSE, D ELLIS HERSHKOWITZ, RAJMOHAN RAJARAMAN

2023

IEEE Symposium on Foundations of Computer Science (FOCS) 2023. arxiv.org/pdf/2308.01199

Toppleable Permutations, Excedances and Acyclic Orientations

WITH ARVIND AYYER, PRASAD TETALI

2022

Combinatorial Theory, 2(1). doi.org/10.5070/C62156882

On the Hypergraph Connectivity of Skeleta of Polytopes

WITH JOSEPHINE YU

2022

Discrete & Computational Geometry (2022), pages 1–4. doi.org/10.1007/s00454-021-00362-9

Professional Experience

TEACHING AND MENTORING

Summer 2023	Polymath Jr. Research Program , Graduate Mentor for Covering Grids with Hyperplanes Project	Polymath Jr.
Summer 2022	Polymath Jr. Research Program , Graduate Mentor for Ramsey Theory Project	Polymath Jr.
Summer 2021	Concepts of Mathematics (21-127) , Graduate Teaching Assistant	CMU
Spring 2021	Discrete Mathematics (21-228) , Graduate Teaching Assistant	CMU
Fall 2020	Calculus in 3 Dimension (21-259) , Graduate Teaching Assistant	CMU
Fa. '19 - Sp. '20	Design & Analysis of Algorithms (CS 3510) , Teaching Assistant	Georgia Tech
Fall 2018	Intro to Linear Algebra (Math 1553) , Teaching Assistant	Georgia Tech

INTERNSHIPS

Summer 2020	Tagup, Inc. , Data Science Intern	Somerville, MA
	Developed and implemented machine learning models using JAX and Tensorflow for survival analysis, predicting time-to-event (TTE). Achieved >10x speedup of distributed model training using Dask.	
Summer 2017	Left Hand Robotics , Prototyping / Software Engineering Intern	Longmont, CO
	Worked on the design and control of a self-driving snow removal robot. Prototyped algorithms for high precision GPS path collection, following, and correction. Used Python and Java being run on a Raspberry Pi.	

PROFESSIONAL SERVICE

2023	CMU Theory Lunch , Co-organizer	CMU
2022	ICALP , Reviewer	Paris, FR
Fa. '19 - Sp. '20	Georgia Tech Theory CS Club , Talk Coordinator	Georgia Tech

Honors & Awards

ACADEMIC

2021	NSF Graduate Research Fellowship Program , Awarded (3 years PhD funding)	NSF
2020	Highest Honor , Georgia Tech institutional honors	Atlanta, GA
2016-2020	Faculty Honors Letter , 4.0 GPA all semesters at Georgia Tech	Atlanta, GA

PROFESSIONAL

2021	CMU ACM Hackathon: Algorithms with a Purpose , Second Place	Pittsburgh, PA
2018	HackGT: Goldman Sachs Data Mining Challenge , First Place	Atlanta, GA
2017	HackGT: FINRA Data Mining Challenge , First Place	Atlanta, GA

Misc

Languages	Python/SageMath, Mathematica, Java, C/C++, \LaTeX
Skills	TensorFlow, PyTorch, Anaconda (SciPy, NumPy, scikit, Jupyter, etc.), Dask, OpenCV, Git
Service	Math Tutoring at Minadeo Elementary, a Title I school in Pittsburgh, PA (2022)