

Gregory Kehne

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Education

Harvard University | (Cambridge, MA) September 2020 - Present

- PhD Candidate in the Computer Science Department
- Thesis: Algorithms for Social Epistemology and Social Choice (provisional)
- Advised by Ariel Procaccia

Carnegie Mellon University | (Pittsburgh, PA) September 2017 - June 2020

- PhD candidate in the Department of Mathematical Sciences
- Algorithms, Combinatorics, and Optimization (ACO) program

Williams College | (Williamstown, MA) Class of 2016

- Bachelor of Arts in Mathematics (magna cum laude)
- Thesis: “Bipyramid Decompositions of Multi-Crossing Link Complements” (highest honors)

Budapest Semesters in Mathematics | (Budapest, Hungary) January 2015 - May 2015

- Semester-long intensive math study away program
- Emphasis on combinatorics and discrete math

Publications and Talks

(Authors are listed alphabetically unless otherwise indicated by “*”)

Papers

- “Representation with Incomplete Votes” (with Daniel Halpern, Ariel D. Procaccia, Jamie Tucker-Foltz, and Manuel Wüthrich, *AAAI Conference on Artificial Intelligence (AAAI)* 2023)
- “Recruitment Strategies That Take a Chance” (with Ariel D. Procaccia and Jingyan Wang, *Neural Information Processing Systems (NeurIPS)* 2022)
- “Is Sortition Both Representative and Fair?” (with Soroush Ebadian, Evi Micha, Ariel D. Procaccia, and Nisarg Shah, *Neural Information Processing Systems (NeurIPS)* 2022)
- “Can Buyers Reveal for a Better Deal?” (with Daniel Halpern and Jamie Tucker-Foltz, *International Joint Conferences on Artificial Intelligence (IJCAI)* 2022)
- “The Phantom Steering Effect in Q&A Websites” (with Nicholas Hoernle, Ariel D. Procaccia, and Kobi Gal, *Knowledge and Information Systems* February 2022)*
- “Worst-Case Voting When the Stakes are High” (with Anson Kahng, *AAAI Conference on Artificial Intelligence (AAAI)* 2022)
- “Random Order Set Cover is as Easy as Offline” (with Anupam Gupta and Roie Levin, *IEEE Symposium on Foundations of Computer Science (FOCS)* 2021)
- “Fair Sortition Made Transparent” (with Bailey Flanigan and Ariel D. Procaccia, *Neural Information Processing Systems (NeurIPS)* 2021)
- “Aggregating Binary Judgments Ranked by Accuracy” (with Daniel Halpern, Dominik Peters, Ariel D. Procaccia, Nisarg Shah, and Piotr Skowron, *AAAI Conference on Artificial Intelligence (AAAI)* 2021)

- “An Optimal Rounding for Half-Integral Weighted Minimum Strongly Connected Spanning Subgraph” (with D. Ellis Herschkowitz and R. Ravi, *Information Processing Letters (IPL)* April 2021)
- “The Phantom Steering Effect in Q&A Websites” (with Kobi Gal, Nicholas Hoernle, and Ariel D. Procaccia, *IEEE International Conference on Data Mining (ICDM)* 2020)*
- “Strategyproof Mean Estimation from Multiple-Choice Questions” (with Anson Kahng and Ariel D. Procaccia, *International Conference on Machine Learning (ICML)* 2020)
- “Reverse Greedy is Bad for k -Center” (with D. Ellis Herschkowitz, *Information Processing Letters (IPL)* March 2020)
- “Bipyramid Decompositions of Multi-Crossing Link Complements” (with Colin Adams, *Communications in Analysis and Geometry (CAG)* July 2020)
- “Bipyramid Decompositions of Multi-Crossing Link Complements” (undergraduate honors thesis)
- “Volume and determinant density for hyperbolic rational links” (with Colin Adams, Aaron Calderon, Xinyi Jiang, Alexander Kastner, Nathaniel Mayer, and Mia Smith, *J. of Knot Theory & its Ramifications*)

Talks

- “Online Integer Covering in Random Order” (Duke Algorithms Seminar, November 2022)
- “Recruitment Strategies That Take a Chance” (NeurIPS, November 2022)
- “Set Cover in Random Order (or: What Makes the Set Cover Adversary Strong?)” (Harvard TGINF, April 2022)
- “Fair Sortition Made Transparent,” (NeurIPS, December 2021)
- “Strategyproof Mean Estimation from Multiple-Choice Questions,” (ICML, July 2020)
- “Decompositions of multi-crossing link complements into bipyramids,” MAA General Contributed Paper Session on Topology (JMM, January 2017)
- “Volume and determinant densities of hyperbolic rational links,” MAA General Contributed Paper Session on Topology (JMM, January 2016)
- “Totally Geodesic Surfaces in Hyperbolic Knot Complements”, MAA Session (MAA MathFest, August 2015)
- “Geometric Inversions and the Problem of Apollonius,” (Hudson River Undergraduate Math Conference, 2013)

Teaching and Mentorship Experience

Carnegie Mellon University (Pittsburgh, PA)

September 2017 - June 2020

Teaching Assistant

- Matrices and Linear Transformations (F '17)
- Integration and Approximation (S '18)
- Differential and Integral Calculus (F '18, F '19)
- Operations Research I (S '19, S '20)
- Designed and held recitations, presented material, held office hours
- Graded problem sets and exams, answered student questions

Williams College (Williamstown, MA)

September 2015 - May 2016

Teaching Assistant (Applied Topology, Introduction to Number Theory)

- Introduction to Number Theory (F '15)
- Applied Topology (S '16)
- Held weekly TA sessions, presented material
- Graded problem sets, answered student questions

New Horizons in Theoretical Computer Science

June 2022

Teaching Assistant

- One-week online summer school for undergraduates interested in theoretical CS
- Mentored students, organized events, and facilitated discussions and problem sessions.

Emerson Prison Initiative at MCI Concord

May 2022 - June 2022

Volunteer Tutor (Business Mathematics)

- Undergraduate liberal arts program for students incarcerated in Massachusetts
- Reviewed course material, ran problem-solving sessions, and tutored students

Other Professional Experience

CMU Graduate Student Assembly (Pittsburgh, PA)

November 2017 - June 2020

Representative from the Department of Mathematical Sciences

- Assisted in prospective student visits, orientation, and organizing department social events
- Acted as a liaison between graduate students and Department leadership
- Represented math graduate students in the Assembly
- Served on the Finance Committee allocating Assembly funds

NewGrid, Inc. (Boston, MA)

September 2016 - July 2017

Software Engineer

- Worked to develop optimization software for the energy transmission grid
- Software improves grid reliability, efficiency, and responsiveness through topology changes
- Designed, analyzed, and implemented algorithms for sparse graphs
- Applied parallelization and mixed-integer linear programming techniques

Williams College Bronfman Science Center (Williamstown, MA)

September 2013 - May 2016

Research Assistant

- 3D industrial design, high-precision manual and CNC machining, repairs
- Supported physics, chemistry, geology, biology, and psychology labs

SMALL Undergraduate Research Program | (Williamstown, MA)

June 2015 - August 2015

Undergraduate Researcher

- NSF-funded Research Experience for Undergraduates (REU)
- Participated in the hyperbolic knot theory group, mentored by Colin Adams
- Performed independent and collaborative research on hyperbolic volume and knot invariants

Honors and Memberships

Honors and Memberships

- Siebel Scholarship recipient (2022)
- Member of the ACM, SIGecom special interest group
- Member of the AMS
- Rosenberg Prize for outstanding mathematics senior (2016)