David Hannon, Ph.D.

david.hannon32@gmail.com david-hannon-82391118a
dhannon1.github.io/

About Me

I am a Ph.D. student in the School of Mathematical Sciences at Queen Mary, University of London, supervised by Felix Fischer. I work in Algorithmic Game Theory, Mechanism Design and Combinatorics. In particular I am interested in computational social choice theory and multiagent systems, I use tools from probablity and graph theory to look into questions on algorithmic fairness. I am always interested in areas to find new ideas and adapt old ones to new fields.
My other interests include pondering on the ethics of technology and AI, more specifically the ethics of algorithmic decision making processes within government and tech companies, and advocacy for transparency and accountablity when using said algorithms.

Education

2020 – 2024 **Ph.D., Queen Mary University of London** in Mathematics.
Thesis title: *Optimal Impartial Mechanism Design*
Studied topics within Algorithmic Game Theory, Operations Research, Algorithmic Mechanism Design, Combinatorics, Discrete Optimisation and Multi Agent Systems

2015 – 2019 **1st class Hon, MMath Mathematics, University of Sheffield**.
Thesis title: *Simpicial Complexes*.
Studied topics including Algebraic Topology, Functional Analysis, Algebraic Geometry, Number Theory, Fields, Game Theory, Measure Theory, Graph Theory, Category Theory, Complex Analysis, Differential Geometry, Differential Equations, Statistical Inference, Applied Probability.
Completed programming projects using Python and R.
Thesis based on topics in Topology, Combinatorics and Geometry.

Employment History

2021 – 2024 **Teaching Associate.** School of Mathematical Sciences, Queen Mary University of London.
Courses Taught and Marked: *Introduction to Algebra, Discrete Mathematics, Random Processes and Linear Programming and Games*

2019 – 2020 **Bartender** The Market Pub, Chesterfield.

Research Publications

Journal Articles

1 J. Cembrano, F. Fischer, D. Hannon, and M. Klimm, "Impartial selection with additive guarantees via iterated deletion," *Games and Economic Behavior*, vol. 144, pp. 203–224, 2024, ISSN: 0899-8256. DOI: https://doi.org/10.1016/j.geb.2024.01.008.

Conference Proceedings

1 J. Cembrano, F. Fischer, D. Hannon, and M. Klimm, "Impartial selection with additive guarantees via iterated deletion," in *Proceedings of the 23rd ACM Conference on Economics and Computation*, ser. EC '22, Boulder, CO, USA: Association for Computing Machinery, 2022, pp. 1104–1105, ISBN: 9781450391504. DOI: 10.1145/3490486.3538294.

Skills

Languages	Strong reading, writing and speaking competencies for English
Coding	Experience in Python, Gurobi, numpy, pandas, pytorch, R, LaTeX, SQL …
Web Dev	HTML, CSS, JavaScript
Misc.	Academic research, teaching, Public Speaking, Event Organisation, LaTeX typesetting and publishing.

Miscellaneous Experience

Awards and Achievements

2022 **2nd Place Poster for PGR Day.**, Queen Mary University of London.

Talks and Presentations Given

2024 **Queen Mary Internal Postgraduate Seminar A Brief History of Online Algorithms**, Queen Mary University of London.

2023 **Queen Mary Internal Postgraduate Seminar Mechanism Design and the Selection of Impartial Subsets**, Queen Mary University of London.

Combinatorics Study Group Optimal Impartial Selection, Queen Mary University of London.

LSE Combinatroics Seminar Optimal Impartial Selection, LSE.

Queen Mary Internal Postgraduate Seminar Algorithmic Mechanism Design and Impartial Selection Mechanis, Queen Mary University of London.
Teaching

Outreach and Volunteering

Organised "Our Society", Pint of Science, Queen Mary University of London.
Organised 6 talks from academics to the local community about science and society across 3 days. Talks covered topics including legislation, climate change and working conditions.

Summer Schools

2021 **XVI Summer School in Discrete Mathematics**. Universidad de Chile.

2022 **XVII Summer School in Discrete Mathematics**. Universidad de Chile.

References

Available on Request