

Zishen Qu

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Education

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| 2022–2027 | PhD | University of Illinois at Urbana-Champaign Mathematics |
| 2020–2022 | MMath | University of Waterloo Combinatorics & Optimization (Advisors: Joseph Cheriyan and Yu-Ru Liu) |
| 2014–2020 | BMath | University of Waterloo Pure Mathematics and Combinatorics & Optimization |

Publications

3. P. Hompe, Z. Qu, and S. Spirkl. *Improved bounds for the triangle case of Aharoni's rainbow generalization of the Caccetta-Haggkvist conjecture*. Discrete Mathematics, 2024.
2. A. Chaniotis, Z. Qu, and S. Spirkl. *Minimal induced subgraphs of the class of 2-connected non-Hamiltonian wheel-free graphs*. Discrete Mathematics, 2023.
1. J. Cheriyan, S. Hajebi, Z. Qu, and S. Spirkl. *Minimal induced subgraphs of two classes of 2-connected non-Hamiltonian graphs*. Discrete Mathematics, 2022.

Employment

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| 2020 | University of Waterloo , Undergraduate Research Assistant (Supervisor: Xiaoheng Jerry Wang) |
| 2019 | University of Waterloo , Undergraduate Research Assistant (Supervisor: Joseph Cheriyan) |
| 2016–2017 | Sunnybrook Health Sciences Centre , Imaging Research |
| 2016 | Environment and Climate Change Canada , Ice Model Research Assistant |

Grants, Awards, and Honours

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| 2022–2025 | NSERC Postgraduate Scholarships – Doctoral (PGS D) |
| 2021 | Sinclair Graduate Scholarship |
| 2020 | NSERC Undergraduate Student Research Award |
| 2019 | NSERC Undergraduate Student Research Award |
| 2014–2019 | Syncrude Higher Education Award Program |
| 2015 | University of Waterloo Merit Scholarship |
| 2014 | Alexander Rutherford High School Achievement Scholarship |

Selected talks

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| 2023 | Graph Theory and Combinatorics Seminar, University of Illinois at Urbana-Champaign, <i>A generalized Tutte-Berge formula for f-bounded subgraphs</i> |
| 2022 | 8th Czech-Slovak International Symposium on Graph Theory, Combinatorics, Algorithms and Applications, Charles University <i>Minimal induced subgraphs of two classes of 2-connected non-Hamiltonian graphs</i> |
| 2022 | Student Number Theory Seminar, University of Waterloo <i>The Selberg sieve on lattices</i> |
| 2022 | Graphs and Matroids Seminar, University of Waterloo <i>Minimal induced subgraphs of two classes of 2-connected non-Hamiltonian graphs</i> |
| 2021 | Math Circles, University of Waterloo <i>Sieve Methods in Combinatorics</i> |
| 2021 | Graduate seminars, University of Waterloo <i>An Example of an Estimate by Sieve Methods</i> |
| 2019 | Combinatorial Optimization Reading Group, University of Waterloo <i>Maximizing non-monotone submodular functions</i> |
| 2019 | Short Attention Span Mathematics Seminars, University of Waterloo <i>The Erdős–Szekeres Theorem</i> |
| 2019 | Spring 2019 Undergraduate Research Program, University of Waterloo <i>Listing Minimum Capacity (s, t)-Cuts</i> |
| 2019 | Canadian Undergraduate Mathematics Conference, Queen’s University at Kingston <i>Borel’s Proof of the Heine-Borel Theorem</i> |
| 2018 | Short Attention Span Mathematics Seminars, University of Waterloo <i>An Approximation Algorithm for the k-centre Problem</i> |
| 2018 | Combinatorial Optimization Reading Group, University of Waterloo <i>Local Search Guarantees on Facility Location Problems</i> |
| 2018 | Canadian Undergraduate Mathematics Conference, University of Saskatchewan <i>Graph Homomorphisms</i> |
| 2017 | Canadian Undergraduate Mathematics Conference, Université du Québec à Montréal <i>The Hadamard Conjecture</i> |
| 2016 | Canadian Undergraduate Mathematics Conference, University of Victoria <i>The No-three-in-line Problem</i> |

Teaching

University of Illinois at Urbana-Champaign

- 2023 Math 241: Calculus III, Teaching Assistant
- 2023 Math 231: Calculus II, Teaching Assistant (ranked as excellent)¹
- 2022 Math 221: Calculus I, Teaching Assistant

University of Waterloo

- 2022 CO 454 Scheduling, Teaching Assistant
- 2022 CO 481 Introduction to Quantum Information Processing, Teaching Assistant
- 2021 CO 487/687 Applied Cryptography, Teaching Assistant
- 2021 CO 454 Scheduling, Teaching Assistant
- 2021 CO 250 Introduction to Optimization, Teaching Assistant
- 2020 CO 227 Introduction to Optimization (Non-Specialist Level), Teaching Assistant

Service

- 2022–2023 **Graduate Affairs Committee**, Member
- 2019 **The Pure Math Club**, President
- 2018, 2019 **Waterloo Orientation - Math**, Math Orientation Director (Teamster)
- 2015, 2016, 2017, 2018 *mathNEWS*, Editor

¹list of teachers ranked as excellent by their students, based on student evaluations