

Adrian She

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Education

University of Toronto **Toronto, ON**
PhD in Mathematics *September 2020 - Present*

Courses: Advanced Topics in Quantum Information Theory, Stochastic Calculus

University of Toronto **Toronto, ON**
Master of Science in Computer Science *September 2018 - August 2020*

Specialized in Theoretical Computer Science

Courses: Quantum Computing, Circuit Complexity, Random Matrix Theory

University of British Columbia (UBC) **Vancouver, BC**
Bachelor of Science *September 2013 - April 2018*

Combined Honours in Mathematics and Computer Science, Minor in Physics

Courses: Abstract Algebra, Real Analysis, Probability, Quantum Mechanics, Algorithm Design and Analysis

Academic Awards

- National Sciences and Engineering Council of Canada: NSERC Canada Graduate Scholarship - Doctoral (2020-Present)
- University of Toronto Faculty of Arts and Science Masters' Recruitment Award (2019)
- UBC Computer Science Outstanding Undergraduate Teaching Assistant Award (2018)
- Stanley M. Grant Scholarship for Mathematics Students (2016, 2017)
- Reginald Palliser-Wilson Scholarship for Mathematics Students (2015)
- TREK Excellence Scholarship for Academic Achievement (2014, 2015)

Research Experience

University of Toronto **Toronto, ON**
Graduate Research Student *September 2018 - Present*

- Read papers in quantum algorithms and complexity theory, proof complexity theory, and algebraic complexity theory.
- Working in problems in these areas by formulating and proving conjectures, writing up results in technical reports and conference papers, and presenting results in research group meetings.

UBC Math Department **Vancouver, BC**
Undergraduate Research Student *May 2017 - August 2018*

- Investigated properties of chromatic symmetric functions of graphs using Python and Sage Math Cloud.
- Proved conjectures about chromatic symmetric functions that lead to publications in combinatorics journals.

UBC Math Department **Vancouver, BC**
Undergraduate Summer Research Assistant (USRA) *May-August 2016*

- Developed computer programs in MATLAB to investigate models in statistical mechanics
- Wrote a report to summarize observations from running these simulations.

Publications

All publications are also available on arXiv.

1. S. Dahlberg, **A. She**, and S. van Willigenburg, 2021. Chromatic Posets. Published in *Journal of Combinatorial Theory, Series A, Volume 184*
2. P. Chaugule, M. Kumar, N. Limaye, C.. M. Mohapatra, **A. She**, S. Srinivasan, 2020. Schur polynomials do not have small formulas if the determinant does not. Published in *Proceedings of 35th Computational Complexity Conference (CCC 2020)*.
3. P. Chatterjee, M. Kumar, **A. She**, B. L. Volk, 2020. A quadratic lower bound for algebraic branching programs. Published in *Proceedings of 35th Computational Complexity Conference (CCC 2020)*.
4. S. Dahlberg, **A. She**, and S. van Willigenburg, 2019. Schur and e -positivity of trees and cut vertices. Published in *Electronic Journal of Combinatorics, Volume 27, Issue 1*.

Presentations

- University of Toronto Theoretical Computer Science Student Seminar: one presentation each semester from Spring 2019 - Present
- University of Toronto Quantum Computing Club: "Introduction to Quantum Complexity Theory", November 2020
- Computational Complexity Conference 2020: "Schur polynomials do not have small formulas if the determinant does not", July 2020
- Quantum Information Processing Conference 2020: "Improved Analysis of the Product Test", January 2020 (Poster Presentation)

Teaching Experience

University of Toronto Mathematics Department

Teaching Assistant

Toronto, ON
January 2019 - Present

For Winter 2022 Term:

- MAT 301: Groups and Symmetry (tutorial and marking TA)
- Lead Writing TA (supervising TAs teaching first and second year level courses)

University of Toronto Computer Science Department

Course Instructor and Teaching Assistant

Toronto, ON
September 2018 - August 2020

- Course instructor for CSC 463: Computability and Complexity Theory during Winter 2020.
- Helped instructors develop online courses in response to COVID-19 pandemic.

UBC Computer Science Department

Teaching Assistant

Vancouver, BC
May 2014 - April 2018

- Recognized as an outstanding undergraduate TA for teaching in CPSC 320: Algorithm Design and Analysis during 2017-2018 academic year.

Service

- Subreviewer for papers submitted to QIP 2020, CCC 2021 conferences
- Mathematics Mentor (Winter 2020, 2021, 2022): Volunteered time to mentor and teach talented high school students interested in pursuing post-secondary education or a career related to mathematics.