


## EDUCATION

**Bachelor of Mathematics • University of Waterloo, ON** Sep 2019–Apr 2024 (expected)  
 ▶ Double Major • Computer Science (Co-op) and Combinatorics & Optimization • 99% faculty average

## PUBLICATIONS

**AdvSim: Generating Safety-Critical Scenarios for Self-Driving Vehicles**  Jan 2021  
 ▶ Authors: Jingkang Wang, Ava Pun, James Tu, Sivabalan Manivasagam, Abbas Sadat, Sergio Casas, Mengye Ren, Raquel Urtasun  
 ▶ Accepted to the **Conference on Computer Vision and Pattern Recognition (CVPR) 2021**

## EXPERIENCE

**Student Researcher • Google** May–Aug 2022  
 ▶ Investigated the interpretability and explainability of a machine learning system


**Undergraduate Research Fellow • UWaterloo Computational Motion Group** Sep–Dec 2021  
 ▶ Advisor: Prof. Christopher Batty  
 ▶ Developed accurate, flexible fluid animations using a combination of cell- and filament-based techniques



**Undergraduate Research Assistant • UWaterloo Computer Graphics Lab** May–Aug 2021  
 ▶ Advisor: Prof. Craig Kaplan  
 ▶ Developed generalizable algorithms to enumerate polygons and calculate/visualize their Heesch numbers


**Research Intern • Uber Advanced Technology Group** May–Sep 2020  
 ▶ Advisor: Prof. Raquel Urtasun  
 ▶ Researched methods to add/remove objects and their associated shadows from real LiDAR scenes, creating novel scenarios to test self-driving vehicles  
 ▶ Used optimization algorithms with **PyTorch** to generate worst-case driving scenarios



**Software Engineering Intern • Uber** Jan–Apr 2021  
 ▶ Developed software to show a licence plate image on drivers' cartop displays at pickup

## ACTIVITIES

**Leader • European Girls' Olympiad in Informatics (EGOI) Team Canada** Mar 2021–present  
 ▶ Coached Team Canada to prepare for international programming competition  
 ▶ Gave lectures about competitive programming topics, such as square root decomposition and polynomial hashing 

**Contest Organizer & Problem Author • DMOJ Modern Online Judge** Sep 2018–present  
 ▶ Authored, tested, and wrote tutorials for 40+ programming challenges  
 ▶ **Select writings:** "Dr. Henri and Wormholes" , "An Art Gallery Problem" 

**Educational Cartoons Director • University of Waterloo Math Society** Jan–Dec 2021  
 ▶ Directed a team of writers, artists, and reviewers to produce educational cartoons explaining undergraduate math and computer science concepts   
 ▶ Finished cartoons were published in mathNEWS, UWaterloo's biweekly Math Faculty newsletter

- Developer, Writer, & Artist • Academy 118 Webcomic**  2016–present
- ▶ Created *Academy 118*, a self-published weekly webcomic about the personified periodic table elements
  - ▶ Designed responsive webcomic template and content management system 

## HONOURS

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- Michael and Ophelia Lazaridis Olympiad Scholarship (approx. \$120,000)** 2019–2021
- ▶ Full scholarship awarded for outstanding academic achievement and coding contest performance
- NSERC Undergraduate Student Research Award (\$6000)** 2021
- President’s Research Award (\$1500)** 2021
- Silver Medal • International Olympiad in Informatics (IOI), Japan** Sep 2018
- ▶ Chosen to represent Canada at prestigious international programming competition
  - ▶ Placed 72nd of 335 contestants chosen from 87 countries
  - ▶ Top-ranking female participant overall, as well as first-ever female participant from Canada
- Gold Medal, Silver Medal • Canadian Computing Olympiad (CCO)** May 2018, May 2019
- ▶ Invitation-only national training camp and competition for pre-collegiate programmers
  - ▶ Placed 4th (2018) and 9th (2019) of 30 contestants selected to attend from a pool of 5000+

## SKILLS

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C++ · Python/PyTorch · Java · Go · JavaScript · PHP · HTML · CSS · SQL · R · MATLAB · Bash · Git ·  $\LaTeX$