

## Cole Wyeth

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## Education

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I am a first year PhD student at the University of Waterloo studying computer science.

Cumulative Undergraduate GPA: 3.913/4.0

Technical GPA: 3.963/4.0

Cumulative Graduate GPA: 3.889/4.0

## Experience

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- Summer 2023* **Machine Learning Internship at AeroVironment.** I am currently working on state-of-the-art computer vision systems for UAVs.
- Spring 2022* **Instructor** at the University of Minnesota, Twin Cities. I taught Discrete Structures of Computer Science (CSCI 2011).
- Fall 2021* **Teaching Assistant** at the University of Minnesota, Twin Cities. I ran two discussion sections for Formal Languages and Automata Theory (CSCI 4011).
- Summer 2021* **Machine Learning Internship at Dexai Robotics.** I developed machine learning models in Pytorch and deployed production quality code to robots.
- Spring 2020* **Computational Research** on group synchronization with Professor Gilad Lerman. I applied important optimization algorithms such as quadratic programming and gradient descent as well as more specialized techniques like cycle-edge message passing. I also gained familiarity with the Matlab environment.
- Spring 2020* **Software Lead for Autonomous Snowplow Team.** I recruited and trained new members as well as coordinating software development for a large project.
- Summer 2019* **Research assistant with the Interactive Robotics and Vision (IRV) Lab,** engineering underwater autonomous robotic systems under Professor Junaed Sattar. I became adept at software engineering in Python and C++. I wrote software for a navigation system using computer vision and machine learning.
- Fall 2018* **Joined the University of Minnesota Robotics Team,** working on the autonomous snowplow project to gain experience with computer vision and Robot

Operating System (ROS).

- Summer 2017* **Statistics Internship through High School Apprenticeship Program (HSAP)**, working on the Radical Environmental Direct Action Compendium (REDAC) research project. I gained experience collecting, visualizing, and analyzing real-world data using the R statistical programming language.
- Summer 2016* **Research Internship in Hydraulics**, testing a hydraulic wind turbine model. I learned about hydraulics and did hands-on work on the hydraulic circuit modeling a wind turbine.

## Publications

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- Summer 2023* **Wyeth, C.**, and Sturtivant, C. (2023). A Circuit Complexity Formulation of Algorithmic Information Theory. *Physica D: Nonlinear Phenomena, Special Issue on Machine Learning and Algorithmic Information Theory*. (Under review)
- Spring 2022* Shi, Y., **Wyeth, C.**, and Lerman, G. (2022). Robust Group Synchronization via Quadratic Programming. *International Conference on Machine Learning, ICML 2022*.
- Fall 2020* Hong, J., de Langis, K., **Wyeth, C.**, Walaszek, C., and Sattar, J. (2021). Semantically-Aware Strategies for Stereo-Visual Robotic Obstacle Avoidance. *IEEE International Conference on Robotics and Automation, ICRA 2021*.

## Achievements

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- Winter 2020* **Won the ION Autonomous Snowplow Competition** with the University of Minnesota Robotics Team.
- Fall 2016* **Entered Post-Secondary Enrollment Options (PSEO)** at the University of Minnesota, beginning in my Junior year. Took full time college classes during my last two years of high school.
- 2014-2016* **Enrolled in Project Lead the Way** at South High School, an academic program focused on engineering, and earned college credit.
- 2016* **Minnesota Math League State Competition**, division and team medalist.

## Activities and Interests

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I enjoy building robots, reading, and rock climbing. In the past I was a professional mixed martial arts instructor. I am interested in A.I. alignment.

## References

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- Dr. Gilad Lerman, Professor of Mathematics, University of Minnesota, [lerman@umn.edu](mailto:lerman@umn.edu)
- Dr. Carl Sturivant, Teaching Professor, University of Minnesota, [carl@umn.edu](mailto:carl@umn.edu)
- Dr. Ionut Ciocan-Fontanine, Professor of Mathematics, University of Minnesota, [ciocan@math.umn.edu](mailto:ciocan@math.umn.edu)
- Alan Zhou, Data Scientist, Dexai Robotics, [alan.zhou@dexai.com](mailto:alan.zhou@dexai.com)