





Maximilian Kahn, MMATH

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Employment History




- 2019 – 2021  **Teaching Assistant, University of Waterloo** Teaching assistant for CS 115 (Introduction to Computer Science) and CS 245 (Logic and Computation).
- May 2019 – Aug 2019  **Research Intern, Waterloo Intelligent Systems Engineering Lab** Developed scenarios in the lab's Unreal-Engine-based simulator to evaluate autonomous vehicle performance and safety.
- 2017 – 2019  **Teaching Assistant, Quest University Canada** Tutored students in Calculus 1, Multivariable Calculus, Mathematical Ideas in Finance, and Puzzles, Paradoxes, and the Infinite.
- May 2017 – Aug 2017  **Technician, Reliable Corporation** Worked as a technician repairing faulty circuits in small appliances. Transferred sales history from Netsuite to Shopify.

Education

- 2019 – 2021  **MMath, University of Waterloo** Specialized in artificial intelligence and human-computer interaction.
Thesis title: *Dynamic-Occlusion-Aware Risk Identification for Autonomous Vehicles Using Hypergames*.
- 2015 – 2019  **B.A.&Sc., Quest University Canada** Specialized in physics, mathematics, and computer science.
Thesis title: *Theory and Applications of Neural Networks*.

Talks

Academic Talks

- Forthcoming  **"I Know You Can't See Me: Dynamic Occlusion-Aware Safety Validation of Strategic Planners"**, To be given at ICRA 2022.
- 2019  **"What is a neural network?"**, a talk based on my undergraduate thesis explaining how neural networks work for a general audience. Given at Quest University Canada.
- 2018  **"Birds of a Feather: a perfect-information solitaire card game"**, Given at the 2018 Canadian Mathematical Association Winter Meeting.

Research Publications

Journal Articles

- 1 Kahn, M., Sarkar, A., & Czarnecki, K. (2021). I Know You Can't See Me: Dynamic Occlusion-Aware Safety Validation of Strategic Planners for Autonomous Vehicles Using Hypergames. *arXiv preprint arXiv:2109.09807*.
- 2 Antkiewicz, M., Kahn, M., Ala, M., Czarnecki, K., Wells, P., Acharya, A., & Beiker, S. (2020). Modes of automated driving system scenario testing: Experience report and recommendations. *SAE International Journal of Advances and Current Practices in Mobility*, 2(2020-01-1204), 2248–2266.

Conference Proceedings

- 1 Hoshino, R., & Kahn, M. (2019). Predicting unsolvable deals in the birds of a feather solitaire game. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 33, pp. 9748–9749).

Skills

Languages	Strong reading, writing and speaking competency in English.
Coding	C#, Python.
Software	Unity, Blender, Clip Studio Paint, Substance Painter.
Version Control	Git.
Misc.	Academic research, teaching, L ^A T _E X typesetting and publishing.

Miscellaneous Experience

Awards and Achievements

- 2019 **Keystone Showcase**, Selected as one of the 6 students in a cohort of over 100 graduating students to present their undergraduate thesis to the university.
- 2017 – 2019 **President's List**, Awarded to the top 10% of the student body for outstanding academic achievement and contributions to the university.
- 2015 – 2019 **Quest University Canada Presidential Scholarship**, Presidential Scholarships are awarded to students who have distinguished themselves not only through their academic performance but also through their curiosity, ability to lead, and willingness to contribute to their community.

Certification

- 2022 **Complete C# Unity Game Developer 3D Online Course**. Awarded by GameDev.tv.

Volunteering

- 2018 **Peer-reviewer, Momena**. Peer-reviewer for Quest University Canada's academic journal, Momena.

Projects

Video Games

- 2022 – present **Super Tank Girl**, A multiplayer platformer where players navigate an obstacle course while trying to knock other players off the course using rockets. Built in Unity, the game uses Photon PUN as the networking engine. 3D models for the players and environment are made in Blender and textures are made in Substance Painter.

Aeroponics

- 2021 – present **Indoor Aeroponics Herb and Vegetable Garden**, An indoor custom-built automated aeroponics garden supporting 12 plants. The system works by sprinkling the roots of each plant with nutrient-rich water on a programmed schedule. The plants live inside a grow tent with a programmable light and fan system.

References

Available on Request