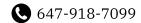
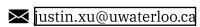
Justin Xu







EDUCATION

Sep 2023 – **Computer Science, Master of Mathematics**, Thesis Program

present

University of Waterloo, David R. Cheriton School of Computer Science | Waterloo, ON

- Supervised by Professor Pascal Poupart
- Continuing knowledge graph research from Jun-Aug 2023 research assistantship
- 93.50% cumulative GPA

Sep 2018 – **Bachelor of Computer Science**, Honours, Co-operative Program

Apr 2023

University of Waterloo, David R. Cheriton School of Computer Science | Waterloo, ON

- Artificial Intelligence Specialization
- · Statistics Minor
- 94.75% cumulative GPA (Dean's Honours)

RESEARCH EXPERIENCE

Jun 2023 – **Research Assistant**

Aug 2023

University of Waterloo, David R. Cheriton School of Computer Science | Waterloo, ON

- Supervised by Professor Pascal Poupart
- Conducted a thorough literature review on the text-to-graph task within natural language processing, including knowledge graph embeddings, contrastive techniques, and data augmentation
- Developed a family of data augmentation methods to improve translation between text and knowledge graphs

Sep 2022 - **Research Intern**

Dec 2022

Waabi | Toronto, ON

- Supervised by Professor Raquel Urtasun
- Experimented with black-box optimization to demonstrate a novel traffic behaviour model's ability to generate realistic adversarial scenarios in self-driving simulations
- Ideated and presented future research directions for addressing the realism-controllability trade-off in the generation of adversarial examples
- Implemented a Bayesian optimization module for a custom Python optimization tool

PROFESSIONAL EXPERIENCE

May 2022 - **Software Development Engineer Intern**

Aug 2022 Amazon | Vancouver, BC

- Created a web application that generates distributed trace trees for customer payments
- Designed a typed functional programming language for configuring the application

Sep 2021 – **Software Developer Intern**

Dec 2021 Alloy | Vancouver, BC

• Implemented a graph algorithm to perform record matching in a product database

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Jan 2021 – **Solutions Developer**

Apr 2021 Fair Ventu

FairVentures Lab | Kitchener, ON (remote)

• Combined object detection and word embedding models to quickly prototype a tool that can answer questions about images of a business

- Designed a collation algorithm for text extracted from tables in scanned documents
- Researched and wrote a report comparing evaluation metrics for text extractions

May 2020 – Full Stack Software Engineer Intern

Aug 2020

Wish | Toronto, ON (remote)

- Conducted an A/B test on improvements to the product approval process
- Prototyped a Pylint checker to suggest efficiency improvements on PyMongo queries

May 2019 – **Mobile Software Developer**

Aug 2019

Osellus (now Leap 9) | Toronto, ON

· Profiled and compared performance of record data structure implementations in Swift

VOLUNTEER EXPERIENCE

Jan 2019 - Writer

present

mathNEWS | Waterloo, ON

• Wrote a series of educational articles on important mathematical constants for an undergraduate mathematics audience

Sep 2020 - Backend Team Lead

Aug 2021

Loo Labs | Waterloo, ON (remote)

• Provided technical guidance to 4 first-year and high school student developers, with emphasis on architecture, documentation, code quality, and maintainability

REFEREED PUBLICATIONS

2023

Simon Suo, **Kelvin Wong**, Justin Xu, James Tu, Alexander Cui, Sergio Casas, and Raquel Urtasun. MixSim: A Hierarchical Framework for Mixed Reality Traffic Simulation.

Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR), 2023, pp. 9622-9631

SELECTED AWARDS

2018 – 9× Term Distinction / Term Dean's Honours List

• for achieving a term average above 80%

2019 University of Waterloo President's Scholarship of Distinction (\$2000)

• for University of Waterloo students with an admission average of 95%

2019 University of Waterloo Faculty of Mathematics Scholarship (\$8000)

for exceptional high school grades and performance on math contents

2019 University of Waterloo Faculty of Mathematics Promissory Scholarship (\$1000)

• for the top 50 grade 11 students on Euclid Mathematics Contest (2017)