

Justin Xu



xujustinj



xujustinj



justinxu.me



xu.justin.j@gmail.com

languages: Python, TypeScript, Java, C++, SQL, R, Bash, LaTeX, HTML/CSS

technologies: PyTorch, Docker, AWS, React, Express.js, MongoDB, Apache Airflow

EDUCATION

University of Waterloo – Computer Science, Thesis Program (current)

Waterloo, ON

Master of Mathematics // artificial intelligence

Sep 2023 – Aug 2025

- supervised by Professor Pascal Poupart

University of Waterloo – Computer Science, Honours, Co-operative Program

Waterloo, ON

Bachelor of Computer Science, Artificial Intelligence Specialization, Statistics Minor

Sep 2018 – Apr 2023

- 94.75% cumulative GPA (Dean's Honours)

EXPERIENCE

University of Waterloo – Research Assistant

Waterloo, ON

Natural Language Processing // information extraction, knowledge graphs, data augmentation

Jun 2023 – Aug 2023



- developed a family of data augmentation techniques for improving information extraction from text

Waabi – Research Intern

Toronto, ON

Autonomous Driving // adversarial machine learning, Bayesian optimization, PyTorch

Sep 2022 – Dec 2022

- augmented a pipeline to simulate **safety-critical scenarios** for testing and training self-driving agents
- experimented with **black-box optimization** techniques to demonstrate a novel traffic behaviour model's ability to generate realistic adversarial scenarios, accepted to **CVPR 2023** as 3rd author  

Amazon – Software Development Engineer Intern

Vancouver, BC

E-Commerce // Java, TypeScript, React, AWS Lambda, Amazon API Gateway, Dagger, JUnit

May 2022 – Aug 2022

- streamlined a complex and time-consuming debugging process by building a centralized tool that looks up customer data and generates **distributed trace trees** in a single click
- greatly increased the reusability of an AWS Lambda function by implementing an **interpreter** that consumes configurations expressed in a **custom functional fully-typed programming language**

Alloy – Software Developer Intern

Vancouver, BC

Supply Chain Analytics // Java, TypeScript, Python, PostgreSQL, React, JUnit, pandas

Sep 2021 – Dec 2021



- unblocked a major data migration by efficiently implementing a **record-matching graph algorithm**
- leveraged **virtualization**, **lazy execution**, and **memoization** to create a reusable drop-down select React component that can handle **tens of thousands** of dynamically-generated items

FairVentures Lab – Solutions Developer

(remote) Kitchener, ON

Insurtech // Python, TypeScript, Bash, Apache Airflow, Docker, GraphQL, React

Jan 2021 – Apr 2021

- built and demoed open-source **artificial intelligence assistants** for the insurtech industry  
- eliminated almost all false positives when parsing **text extractions** from scanned insurance PDF files by redesigning a **post-processing** algorithm

Loo Labs – Backend Team Lead

(remote) Waterloo, ON

Student Development Team // TypeScript, CSS, PostgreSQL, Next.js, Express.js, Docker, Figma

Sep 2020 – Aug 2021

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

Wish – Full Stack Software Engineer Intern

(remote) Toronto, ON

E-Commerce // Python, TypeScript, SQL, MongoDB, GraphQL, React, Grafana

May 2020 – Aug 2020

Osellus (now Leap9) – Mobile Software Developer

Toronto, ON

Microlearning Software // Swift, Kotlin, SQL, iOS, Android

May 2020 – Aug 2020