

Eric Xue

<https://ericxue.com>

LinkedIn: <https://www.linkedin.com/in/eric-xue-4928a81a0/>

Email : xueeric1223@gmail.com

Mobile : +1 778-895-3520

EDUCATION

University of Toronto

Honours Bachelor of Science in Computer Science; GPA: 3.94/4.00

Toronto, ON

Sep. 2021 – Jul. 2025

EXPERIENCE

SocialAI Research Group

Research Student

Toronto, ON

Sep. 2022 - Present

- **Designing Research Studies:** Collaborated with lab members to *design research studies on emergent social behaviors* such as collective action through reinforcement learning (Q-learning) in a simulated environment.
- **Gem:** Helped develop Gem, a general-purpose Python reinforcement learning framework with a focus on accessibility for social scientists to quickly develop and deploy simulated studies.
- **Refactoring:** Refactored and packaged experimental scripts into a higher-level RL interface as a step towards making Gem a general-purpose framework.

aUToronto

2D Object Detection Team Member

Toronto, ON

Sep. 2022 - Present

- **Data Curation:** Collected and curated traffic-oriented image datasets to train *aUToronto's 2D perception system for self-driving while factoring in variations in perspective while driving*.
- **MLOps:** Integrated WandB into the training pipeline, improving optimization efficiency by ~20% through *automatic tracking hyperparameters and performance metrics* across experiments to replace manual Excel tracking.

MOZI AI

Software Intern

Remote Work

Jul. 2020 - Aug. 2020

- **Knowledge Graph:** Implemented features for a knowledge graph-based *gene annotation tool in Python* using OpenCog AtomSpace.
- **Parser:** Generated parsers to extract data from large Atomese files using ANTLR to replace line-based parsing, improving graph visualizer performance by ~10%.
- **Software Testing:** Created and developed software testing frameworks to automatically identify and resolve code errors, *improving development iteration speeds by ~10%*.

PUBLICATIONS

Granular Analysis of Pretrained Object Detectors

ICAIIIC Conference Paper

Authors: Eric Xue, Tae Soo Kim

Feb 2022

- Published in the 2022 International Conference on Artificial Intelligence in Information and Communication.
- **Project Lead:** Designed and performed experiments for fundamental deep learning research as the first author.
- **Image Perturbation:** Implemented various image perturbations to simulate imperfect image conditions in the real world, demonstrating a decrease in accuracy by up to 25%.
- **Subgroup Analysis:** Performed detailed analysis on the effect of various perturbations on pretrained object detection models such as *YOLOv3 and Faster R-CNN* using the KITTI dataset.
- Discovered that geometric effects resulted in greater degradation of performance than those of color.

PROJECTS

- **YumoBot:** Built a dice-roller bot for TRPGs on Discord messaging platform using Discord.js. with *MongoDB* to store and organize user data and refactored code to accommodate updates to the Discord API.
- **Personal Website:** Designed and developed a personal website to showcase past projects with Next.js, and implemented decorative animations and transitions using CSS.
- **Coveet:** Built Coveet, a program that analyzes *Twitter user sentiment* using Python in collaboration with a partner. Parsed, analyzed and visualized over 10GB of tweets with NLTK.
- **BuddyBreed:** Published an iOS app that identifies a dog's breed from a single photo with *90% accuracy* by *adopting ResNet-50 model* for predictions and using Firebase to store uploaded photos and communicate with server.

PROGRAMMING SKILLS

- **Languages:** Python, JavaScript, Java, Swift, C
- **Machine Learning:** PyTorch, NanoDet, WandB

Technologies: Firebase, MongoDB, Next.js, Unity