

Eric Xue

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EDUCATION

University of Toronto

Honours Bachelor of Science in Computer Science; GPA: 3.91/4.00

Toronto, ON

Sep. 2021 – Jul. 2025

EXPERIENCE

SocialAI Research Group

Undergraduate Researcher

Toronto, ON

Sep. 2022 - Present

- Led the development of Gem, a reinforcement learning framework designed specifically to facilitate research into psychologically plausible interactions between agents and environments.
- Designed multi-agent reinforcement learning simulation studies aimed at analyzing emergent social behaviors.

Dr. Haohan Wang's Research Lab

Undergraduate Researcher

Remote

Jun. 2022 - Present

- Led a study focused on the exploration and enhancement of inherent adversarial robustness within condensed datasets.
- Analyzed LLM techniques including supervised fine-tuning, RLHF, and prompt tuning.

aUToronto

2D Object Detection Team Member

Toronto, ON

Sep. 2022 - Apr. 2023

- Contributed to the development of a 2D object detection system for an autonomous vehicle.
- Trained and validated object detection models for autonomous driving using YOLOv5.
- Collected and labeled images for a comprehensive traffic-oriented image dataset.
- Integrated WandB (Weights and Biases) into the training pipeline, enhancing the efficiency of experiments by 75%.

MOZI AI

Software Intern

Remote

Jul. 2020 - Aug. 2020

- Collaborated with a team of engineers to develop a knowledge graph-based gene annotation tool at a biotech startup.

PUBLICATIONS

Towards Adversarially Robust Condensed Dataset by Curvature Regularization

Under Review for ICLR 2024

Oct 2023

- Authors: Eric Xue, Haoyang Liu, Yifan Shen, Haohan Wang
- Explored inherent adversarial robustness in condensed datasets through a combination of empirical investigations and theoretical analyses.
- Proposed a novel method, informed by theoretical insights, to enhance the robustness of models trained on condensed datasets through curvature regularization.

Granular Analysis of Pretrained Object Detectors

ICAHC 2022 Conference Paper

Feb 2022

- Authors: Eric Xue, Tae Soo Kim
- Performed detailed analysis on the performance of pretrained object detectors with respect to different image subgroups and perturbations under the setting of autonomous driving.

PROJECTS

- **Tweeter**: Created Tweeter, a web application powered by GPT-3, to assist users in transforming everyday experiences into captivating tweets.
- **Coveet**: Built Coveet, a program that analyzes and interactively visualizes 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, Java, JavaScript, C

Technologies: Firebase, MongoDB, Next.js, Unity

AWARDS

Google Code-in: Runner Up (2019), **RoboCupJunior Soccer Worlds:** 2nd (2019) , 3rd (2017)