Yang Xu

yanguoft.xu@mail.utoronto.ca | yangxu.ca | linkedin.com/in/yangxu0 | github.com/YangXu-0 | 647-971-0375 | Toronto, ON

Education

University of Toronto

Engineering Science, Robotics Engineering – GPA 3.99/4.00 Sep 2021 – Apr 2026

Relevant Courses: Digital & Computer Systems, App. Fundamentals of Deep Learning, Data Structures & Analysis, Robotics.

Pursuing a career as a robotics engineer.

Skills

Technical: Python, C, C++, MATLAB, Git, Azure DevOps, PyTorch, Tensorflow, Robot Operation System (ROS), CAD, Excel

Language: English (Native Proficiency), Chinese Mandarin (Native Proficiency), French (Professional Working Proficiency)

Experience

Rocscience – Research and Development Engineer Toronto, ON | May – Aug 2023

- Conducted in-depth **research in the field of rigid-body impact mechanics with friction** in both 2D and 3D settings, aimed at enhancing the accuracy of rockfall simulations in RocFall2 and RocFall3.
- Researched topics like **numerical optimization** (linear complementarity problems, quadratic programming, etc.) and **theories of impact mechanics** (like Stronge) to determine and fix physical inaccuracies in RocFall3.
- Executed experiments and performed thorough statistical analyses to validate math and software implementation, ensuring the reliability of the research outcomes.
- Implemented critical modifications to the existing RocFall3 impact engine using C++, resulting in a **theoretical accuracy increase of an estimated 50%** and a **practical performance improvement of an estimated 15%**.

Advanced Micro Devices (AMD) – Software Engineering Markham, ON | May – Aug 2023

- **Programmed Python-based automation scripts and data-analysis tools** like data parsers and visualization scripts to streamline experimentation and data analysis work done by the team.
- Researched and developed a **90% accurate machine learning model** that scrubs gigabytes of raw data for useful information, reducing the bog of trivial work and enabling the potential for new data analysis tools in the future.
- Conducted experiments to **discover and test new methods of improving CPU and GPU power allocation** in Smart Shift to increase performance in future AMD-powered laptops.

TechForGood Inc. – Software Engineering Remote | June – Aug 2021

- **Developed frontend interfaces** for an initiative aimed at providing a user-friendly website for educators to build customized interactive activities for students without technical training to support education during the pandemic.
- Utilized React (TypeScript), CSS, and HTML to lead frontend development, delivering key components like the login page, user profiles, and interactive activity interfaces.

Leadership & Activities

Robotics for Space Exploration Team (RSX) Arm Team – Robot Operating System (ROS), Controller Area Network (CAN)

- Worked with the team **in developing a ROS and CAN system** to control the **robotic arm on the RSX mars rover**.

IngredientCheck – PyTorch, Convolutional Neural Network (CNN)

- A **CNN** with a **VGG-like architecture** built in **PyTorch** that classifies ingredients in food photos with **~80% accuracy.**

MalariArm – Computer Aided Design (CAD), Embedded Systems & Microcontrollers

- An affordable **robotic arm that automates malaria microscopy preparation** to **decrease testing time by 30%**.

CheckInWithMe – IBM Watson Natural Language Processing (NLP), Google Cloud Natural Language API, Web Scraping

- A Discord bot that uses **NLP models** to provide mental health support. **Won 2 awards** at Mental Health Hacks 2021.