

# Eric Xie

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## EDUCATION

### University of Toronto (UofT)

BASc. Engineering Science

Toronto, ON

Sep. 2024 – Apr. 2028

- GPA: 3.8/4.0
- Extracurriculars: UofT Aerospace SAE software team (camera simulation & localization in Gazebo); UofT Formula Racing braking team (designing brake piston in Solidworks)
- Roles: EngSci 1st & 2nd year class representative - resolve academic challenges, improve student well-being

## EXPERIENCE

### Robotics Research Intern

Syncere AI

May 2025 – Sep. 2025

Toronto, ON

- Allowed robot arms to be implicitly compliant and reactive to external forces, improving safety in human-robot interactions while removing need for a 6-axis torque sensor which reduces cost by at least \$2,000
- Designed an end-to-end impedance controller with reinforcement learning in Isaac Lab; overcame sim-to-real gap and deployed on Koch arm robot
- Developed a bilateral teleoperation system using servo current readings, boosting data collection speed by 17%
- Collected teleoperation data and trained with diffusion to allow for compliant movements during inference

### MLH Software Engineering Fellow

Facebook AI Research

June 2024 – Sep. 2024

Remote

- Contributed to SimulEval, an evaluation toolkit for simultaneous translation; 5 Python pull requests merged
- Created visualization features for raw speech to text data, aiding researchers in understanding output
- Implemented a Docker feature for remote speech to text inference, ensuring uniform environment dependencies
- Developed a streaming demo feature that transcribes speech in real-time through OpenAI's Whisper and Pyaudio
- Proactively troubleshoot logic and dependency errors, improving GitHub workflow efficiency by 50%

## PROJECTS

### DUM-E | Robotics, NLP, OpenCV, Raspberry Pi, Groq, Llama 3.3

Sep. 2025

- Invented DUM-E from the Iron Man movie - an NLP powered robotic arm that can reason, generalize, and execute tasks such as grasping, waving, and doing pick & place - with just voice, winning Hack the North
- Analytically solved 5 DOF inverse kinematics; successfully deployed on Raspberry Pi with inference time of <1 ms
- Leveraged OpenCV and homography to locate objects; created multimodal VLA with Groq & Llama 3.3

### Autotune | TypeScript, Next.js, Python, Firebase, HuggingFace API

Mar. 2025

- Built a marketplace for anyone to outsource ML model fine-tuning, democratizing access to GPU computing resources, winning Best ML Hack at GenAI Genesis
- Created frontend with TypeScript; SSR with Next.js to optimize performance; integrated with Python backend to submit training requests in Firebase and finetune with HuggingFace API

### Viral Insight | Frontend, NextJS, AI Regression

June 2024 – July 2024

- Developed an AI-powered regression-based YouTube statistic prediction tool as part of Buildspace 2024, empowering content creators with brainstorming catchy titles
- Designed the frontend UI using NextJS with backend integration; hosted on Vercel
- Successful product demo and launch with 600+ page views and 100+ upvotes on Product Hunt

### Nail Braille | Arduino, CAD, Mozilla DeepSpeech

July 2022 – Nov. 2022

- Chief Engineering Officer: Led development of a speech-to-braille learning device for visually impaired individuals to help navigating and interacting with the surrounding environment
- Utilized Arduino & CAD; interfaced Mozilla DeepSpeech; developed 3 iterative prototypes
- Shad 2022 Best Prototype Award & 2022 Youth Innovation Showcase Finalist + Public's Choice Award

### VEX Robotics | C++, PID, Odometry, CAD

Sep. 2021 – June 2024

- Programmer & Designer: Developed motion control algorithms (PID, odometry, pure pursuit) to execute precise autonomous robotic movements
- Designed with CAD; constructed hardware prototypes and mechanisms: power-take-off (PTO), chassis, ratchet, gears
- 8 tournament awards, including 2022 BC Provincial Finalist and scoring top 30% in the World Championship

## LEADERSHIP

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### **TEDx Speaker**

Oct. 2023 – Dec. 2023

*TEDxYouth@SunsetBeach*

*Vancouver, BC*

- Delivered a 10-minute TED Talk titled “Take the First Step - What I Learned from Talking to 100 Strangers”
- Detailed overcoming social anxiety and communication barriers as an international student; inspired others to continuously step outside of their comfort zones

### **Tournament Manager**

Oct. 2021 – June 2024

*Ten Ton Robotics*

*West Vancouver, BC*

- Reserved VEX IQ elementary & middle school tournament venue; set up hardware & software; coordinated volunteers; resolved logistic & technical challenges
- Ten Ton Robotics Most Valuable Volunteer 2022 & 2023
- International Robotics Honour Society 2024 for exceptional contribution in robotics education

### **Parkrun Director**

Aug. 2022 – June 2024

*Ambleside Parkrun*

*West Vancouver, BC*

- Setup & oversaw event-day 5km course checks to ensure safety
- Gave 5-minute speeches to welcome weekly 100+ participants; promoted fitness in the community
- District of West Vancouver Youth Recognition Award in 2023 for exceptional community involvement and service

### **VEX IQ Robotics Instructor**

July 2023 – Aug. 2023

*UTG Academy*

*Vancouver, BC*

- Taught hardware mechanisms: bar lifts, gear ratios to educate young students about mechanical design
- Introduced software tools: Scratch, VR to help students build fundamental programming skills
- Fostered an interactive and fun play-and-learn environment for 20+ middle school VEX IQ students

## AWARDS & CERTIFICATIONS

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**Hack the North Winner** | *NLP powered robotic arm*

Sep. 2025

**GenAI Genesis Hackathon Best ML Hack** | *LLM finetuning marketplace*

Mar. 2025

**AWS AI & ML Scholarship** | *End-to-end ML workflows in AWS*

Nov. 2024

**AWS Hack The Student Life Hackathon Winner** | *Roommate matching using semantic search*

Nov. 2024

**ACSL Senior Division 1st Place, Finalist** | *Competitive programming*

May 2023

**USA Computing Olympiad (USACO) Gold Division** | *Competitive programming*

Mar. 2023

**ICRA Undergrad Outreach Workshop Award** | *Attending world's largest robotics conference*

May 2025

**International Robotics Honour Society**

Jan. 2024

**UofT Engineering Kompetition (UTEK) Junior Division Finalist**

Jan. 2025

**Standard First Aid with CPR C/AED**

May 2025

**Bronze Cross - Lifesaving Society**

June 2021

## TECHNICAL SKILLS & INTERESTS

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**Software Skills:** C++, Java, Python, PyTorch, HTML, CSS, JavaScript, ROS, Docker, GitHub, ReactJS, NextJS, Vercel, Isaac Gym, Gazebo, OpenCV, AWS Sagemaker, S3, Lambda & Step functions, CUDA, Verilog, RISC V Assembly

**Hardware Skills:** Solidworks, Arduino, Onshape, 3D Printing, Soldering, Machining, Welding, Robotics design

**Professional Skills:** Leadership & Management, Teamwork & Collaboration, Active learning & Curiosity, Communication & Public speaking

**Languages:** English (native), Mandarin (native), French (intermediate)

**Hobbies:** Track and field, ultimate frisbee, swimming; Piano, finger style guitar; Chess (BC Chess Champion)