

# Edward (Eddie) Guo

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## Education

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**University of Calgary** Jul. 2022 – Apr. 2025  
*Doctor of Medicine (MD)*

**University of Alberta** Sep. 2020 – Apr. 2022  
*Bachelor of Science, Engineering Physics (Partially completed degree)* GPA: 4.00/4.00

- Awarded \$24,000+ for leadership and academic achievements at the University of Alberta
- Awarded \$17,500+ for nerve regeneration and exoskeleton control systems research
- Top of class in English critical analysis, multivariable calculus, and organic chemistry II; SAT Math Level 2: 800/800

**New College, University of Oxford** May 2021 – Aug. 2021  
*Study Abroad, Magnetic Resonance Imaging and Stem Cell Engineering* First Class Honours

**University of Alberta** Sep. 2018 – Apr. 2020  
*Bachelor of Science Honours, Neuroscience (Partially completed degree)* GPA: 4.00/4.00

## Experience

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**Telerobotic and Biorobotic Systems Group** Sep. 2021 – Present  
*Research Assistant*

- Leading the development of a voice-controlled exoskeleton; users complete tasks 54% faster than using a mobile app; media coverage: [University of Alberta interview](#)
- Designing reinforcement learning algorithms for exoskeletons to personalize the patient rehabilitation process; implemented the state-of-the-art TD3 algorithm on a lower-limb exoskeleton to intelligently detect and set a user's desired walking speed

**University of Alberta** Sep. 2020 – Apr. 2022  
*Teaching Assistant, Introduction to Tangible Computing I & II*

- Supported a class of 160+ students to understand algorithms and data structures in Python and C++; received an overall effectiveness rating of 93% from anonymized student feedback surveys for the 2020-2021 academic year
- Collaborated with a team of 16 teaching assistants to facilitate course delivery while studying as a full-time student

**Zochodne Laboratory, University of Alberta** Oct. 2018 – Oct. 2020  
*Research Assistant*

- Studied mouse models of peripheral nerve damage to improve patient outcomes after injury
- Performed mouse sciatic nerve microsurgery, electroporation, immunohistochemistry, co-IP, and Western blot

**Edmonton Fencing Club** Nov. 2016 – Oct. 2020  
*Fencing Coach*

- Coached classes of 5-25 children and teenagers and engaged their parents about their child's progress
- Gave private lessons, taught strategic fencing thinking, and resolved student conflicts

## Volunteering

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**Engineering Physics Club at the University of Alberta** Sep. 2021 – Jun. 2022  
*Vice President External & Year Representative*

- Invited by University of Alberta faculty to align the Engineering Physics curriculum with industry and research needs; engaged multiple stakeholder groups; implemented 2 core classes and 2 electives; preserved the co-op program
- Founded and wrote the [Atom Magazine for Engineering Physics](#); the first issue attracted 300+ readers in 6 countries

**Youreka Canada** Feb. 2019 – Jun. 2022  
*Vice President, Department of Programs (May 2020 – Jun. 2022)*

- Led a team of 17 PhD, MD, and BSc students to create and deliver the Youreka national curriculum; generating 15,000+ hours of research education for 200+ high school and undergraduate students annually across Canada
- Authored an [interactive e-textbook on R programming and data science](#) used by 400+ students across Canada
- Published an academic paper highlighting student development in Youreka in the Alberta Science Education Journal (2022)

#### *National Operations Committee Member (May 2020 – Jun. 2022)*

- Co-led the creation of the first Youreka national financial aid and equity, diversity, and inclusion (EDI) policies; funded all 12 students who applied for bursaries for the 2021-22 program
- Spearheaded the first professional development and pedagogy training for 17 undergraduate teachers across Canada

#### *Vice President of Academics (May 2019 – Jun. 2021)*

- Taught a ten-week science program to a cohort of 30 high school and undergraduate students in Edmonton
- Taught all Youreka Canada branches and created slide sets, worksheets, and Python 3 code during the COVID-19 pandemic
- Spearheaded a pilot project for Youreka Edmonton that doubled student enrollment from 30 to 60 students from 2019 to 2020

#### *Undergraduate Research Lead (Feb. 2019 – May 2019)*

- Mentored a team of 4 high school students for 4 months about bioinformatics research
- Nominated by my team for the “Best Undergraduate Research Lead” award

#### **Canadian Blood Services**

Jun. 2018 – Jan. 2021

##### *NextGen Lifeline Committee Executive*

- Coordinated and organized blood donation and stem cell events (e.g., patient campaigns) with staff and volunteers
- Created a software management system for volunteer contracts and event data
- Personally recruited 130+ blood donors and 350+ stem cell donors

## **Publications and Conferences**

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1. S. Becker, D. Clark, M. Gupta, S. Kannappan, B. Wong, E. Hernandez-Zavaleta, and **E. Guo**, “More than a Eureka Moment: Undergraduate Students’ Reflective Understanding of Science Inquiry in a Citizen Science Project,” *Alberta Science Education Journal*, vol. 48, no. 1, pp. 22-36, Jun. 2022.
2. **E. Guo**, P. Torabi, D.E. Nielsen, and M. Pietrosanu, “Deep learning transcriptomic model for prediction of pan-drug chemotherapeutic sensitivity,” *STEM Fellowship Journal*, Jan. 2022, doi: 10.17975/sfj-2021-013.
3. S. Becker, D. Clark, M. Gupta, S. Kannappan, B. Wong, **E. Guo**, and E. Hernandez-Zavaleta, “Deepening Undergraduate Student Understanding of Science Inquiry by Reflecting on the Creation and Enactment of a Citizen Science Project,” presented at the Canadian Society for the Study of Education XLIX Annual Conference, Canada, May 30–June 3, 2021.

## **Research Grants**

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#### **NSERC Undergraduate Student Researcher Award**

Mar. 2022

- Awarded for project titled “Intelligent control of a lower-limb exoskeleton”

#### **Dean’s Research Award**

Sep. 2021

- Awarded for project titled “Speech-based locomotion planning for lower-limb exoskeletons”

#### **Alberta Innovates Summer Research Studentship**

Apr. 2020

- Awarded for project titled “Skin and Nerves: Understanding the dialogue between axons and skin cells to restore sensation”

#### **Office of the Provost and VP (Academic) Summer Studentship Award**

May 2019

- Awarded for project titled “Axon regrowth and plasticity in diabetic neuropathy: the role of growth cone molecules”

## **Skills and Certifications**

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#### **Programming**

R, Python, C++, MATLAB, VHDL

#### **Software**

Simulink, FMRI Software Library, Git, L<sup>A</sup>T<sub>E</sub>X, HTML, CSS, R Markdown, Microsoft Office

#### **Skills**

Reinforcement learning, research, data science, teaching, curriculum development

#### **Electronics**

Arduino, Raspberry Pi, Zybo Z7 FPGA, oscilloscope, digital multimeter, Exo-H3

#### **Certifications**

Class 5 Driver’s Licence, WHMIS 2021, Standard First Aid CPR and AED Level C, DELF B1

## **Honours and Awards**

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#### **Jason Lang Scholarship**

Nov. 2021

- Awarded to Alberta post-secondary students for academic achievements

- Peter Lougheed Scholarship** Sep. 2021
- Awarded to University of Alberta students who demonstrate leadership through involvement in university or community organizations, sports activities, or cultural activities and academic achievement; valued at \$10,000
- Louise McKinney Post-Secondary Scholarship** Dec. 2019, Sep. 2020
- Awarded on the basis of superior academic achievement (top 1.5-2% of faculty) to students at the University of Alberta who are also Alberta residents. Awarded for the 2018/19 and 2019/20 academic terms
- Undergraduate Big Data Challenge Research Excellence Award** Jul. 2020
- Used unsupervised learning, feature selection, and neural networks to predict cancer response to chemotherapies
- Alberta Innovates COVID-19 Hackathon Post-Secondary Student Award** May 2020
- Created an interactive app to model how COVID-19 spreads given age, poverty, income, and population density
  - Media coverage: [University of Alberta Folio article](#) and the [Genome Alberta podcast](#)
- Faculty of Science Undergraduate Scholarship** Aug. 2019
- Awarded to students with superior academic achievement enrolled in the Faculty of Science at the University of Alberta
- Sci5 Outstanding Achievement in Science Scholarship** Apr. 2019, Mar. 2020
- Awarded to 4 well-rounded students with strong academic achievement, extracurricular involvement, and recommendation letters
- Thirst 4 Knowledge Undergraduate Leadership Scholarship** Sep. 2019
- Awarded to University of Alberta students with superior academic achievement who demonstrate leadership through involvement in university or community organizations, sports activities, or cultural activities
- University of Alberta Undergraduate Scholarship** Aug. 2019
- Awarded to students with superior academic achievement at the University of Alberta
- Alexander Rutherford Scholarship** Aug. 2018
- Awarded to high school graduates with exceptional academic standing over all 3 years of high school