

# Edward (Eddie) Guo

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## Education

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### University of Alberta

Bachelor of Science in Engineering (GPA: 4.00/4.00)

Sep. 2020 – Present

### University of Alberta

Bachelor of Science Honors Neuroscience (GPA: 4.00/4.00)

Transferred to the Faculty of Engineering at the University of Alberta

Sep. 2018 – Apr. 2020

## Employment

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### Undergraduate Teaching Assistant

Introduction to Tangible Computing I & II (CMPUT 274 & 275), University of Alberta

Sep. 2020 – Present

- Providing personalized student support during office hours to a class of 160+ students.
- CMPUT 274 & 275 is the honors stream of introductory CS and Computer Engineering courses at the University of Alberta. Topics include introductory programming, data structures, and algorithms in Python and C++.

### Undergraduate Research Student

Zochodne Lab

Oct. 2018 – Oct. 2021

- Researching the effects of acute and chronic cutaneous denervation on differential mRNA expression in skin keratinocytes.
- Techniques: mouse nerve microsurgery (sciatic nerve crush), mouse tissue harvesting, electroporation, immunohistochemistry, co-IP, Western blot, confocal microscopy.

### Fencing Coach

Edmonton Fencing Club

Nov. 2016 – Oct. 2020

- Taught fencing to children and teenagers in class sizes ranging from 5-25 students.
- Fixed and made fencing blades and wires and refereed fencing competitions.

## Publications

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1. Becker, S., Clark, D., Gupta, M., Kannappan, S., Wong, B., Hernandez-Zavaleta, E., & **Guo, E.** (2021, May 29–June 3). *Deepening Undergraduate Student Understanding of Science Inquiry by Reflecting on the Creation and Enactment of a Citizen Science Project* [Paper presentation]. Canadian Society for the Study of Education.

## Research Grants

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### Alberta Innovates Summer Research Studentship

Apr. 2020

- Grant for summer research project titled “Skin and Nerves: Understanding the dialogue between axons and skin cells to restore sensation.” Awarded by the Undergraduate Research Initiative, University of Alberta.

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

May 2019

- Grant for summer research project titled “Axon regrowth and plasticity in diabetic neuropathy: the role of growth cone molecules.” Awarded by the Faculty of Medicine and Dentistry, University of Alberta.

## Technical Skills

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**Programming:** R, Python, C++, Arduino

**Markup and Version Control:** L<sup>A</sup>T<sub>E</sub>X, HTML, CSS, Git

**Software:** Fusion 360, Excel

## Volunteering

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### Youreka Canada

Associate Director of Programs, Youreka Canada

**May 2020 – Present**

- Leading the Programs Department to develop the national curriculum, which provides 15,000+ hours of research and data science education for 200+ high school and undergraduate students annually across Canada. My team consists of Ph.D. and senior undergraduate students across Canada.
- Collaborating with the Clark laboratory at the Werklund School of Education at the University of Calgary to develop a multi-year research study of the educational effectiveness of the Youreka program.
- Leading a national undergraduate trainee program for educational skills.
- Authored a [textbook on R programming and data science](#) currently used by 200+ students across Canada.

National Operations Committee Member, Youreka Canada

**May 2020 – Present**

- Leading a national talent recognition and mentorship initiative.
- Managing national short-term strategy and organizational policy.
- Co-directed a nationwide hackathon that attracted 100+ students.

Vice President of Academics, Youreka Edmonton

**May 2019 – Present**

- Lecturing a ten-week program to a cohort of 60 high school and undergraduate students.
- Leading an undergraduate trainee initiative for promising Vice President of Academics candidates.
- Provided four live video lectures to all Youreka Canada branches and created slide sets, worksheets, and Python 3 code on introductory statistics during the COVID-19 pandemic.
- Spearheaded a pilot project that doubled student enrollment from 30 to 60 students from 2019 to 2020.

### Canadian Blood Services

Vice President Volunteer Resources Committee

**Aug. 2020 – Jan. 2021**

- Managed volunteer contracts, wrote reference letters, and ensured volunteer accountability.

Stem Cell Board Coordinator

**Sep. 2019 – Aug. 2020**

- Planned and ran Canadian Blood Services' stem cell events (e.g., patient campaigns) with staff and volunteers. There were typically one or two stem cell recruitment events per month.

Edmonton NextGen Lifeline Committee

**Sep. 2018 – Jan. 2021**

- Recruitment for blood donations and informing the public about blood and stem cell donations.
- Lead developer for the digitization of volunteer data. Created a Python 3 Tkinter application that queries and analyzes volunteer contracts from an SQL database.

## Project Experience

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### Electroencephalogram (EEG) Visualizer

Apr. 2020 – May 2020

- The application takes an EEG data stream over a local network and visualizes both the raw and transformed signals in a PyQt5 user interface. The program implements the radix-2 decimation-in-time fast Fourier transform algorithm.

### Driving Route Finder

Apr. 2020 – May 2020

- Developed a route finder where the user can indicate a start and endpoint anywhere in Edmonton using a joystick. A desktop C++ program computes the shortest possible route using the A\* algorithm and displays it on an Adafruit 3.5" touchscreen display on an Arduino Mega2560.

## Honours and Awards

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### 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.

### Dean's Honor Roll, Faculty of Science

May 2019, Sep. 2020

- Awarded to students at the University of Alberta with a Grade Point Average of 3.5 or higher.
- Awarded for the 2018/19 and 2019/20 academic terms.

### Undergraduate Big Data Challenge Research Excellence Award

Jul. 2020

- Project titled "Deep learning transcriptomic model for prediction of pan-drug chemotherapeutic sensitivity."
- Hackathon theme: *Personal and Public Health Decisions in a New Open Data Reality*. 524 participants across Canada and America. See the [manuscript and source code](#).

### COVID-19 Data Science Hackathon Post-Secondary Student Award

May 2020

- Developed an interactive application using a multivariate regression model to better understand the impacts of age, poverty, income, and population density on the spread of the COVID-19 virus.
- The hackathon was hosted by Alberta Innovates, Cybera, and the Pacific Institute for Mathematical Sciences. 120 individuals and teams competed in the hackathon.
- Media coverage: [University of Alberta story](#) and the [Genome Alberta podcast](#).

### Sci5 Outstanding Achievement in Science Scholarship

Mar. 2020

- Awarded to 4 well-rounded students with strong academic achievement, extracurricular involvement, and recommendation letters in the Faculty of Science at the University of Alberta.

### University of Alberta Undergraduate Scholarship

Sep. 2019

- Awarded to students with superior academic achievement.

### T4K Undergraduate Leadership Scholarship

Sep. 2019

- Awarded to students at the University of Alberta with superior academic achievement who demonstrate leadership through involvement and participation in university or community organizations, sports activities, or cultural activities.

### Faculty of Science Undergraduate Scholarship

Sep. 2019

- Awarded to students with superior academic achievement enrolled in the second, third, or fourth year of an undergraduate degree in the Faculty of Science at the University of Alberta.

### Sci5 Outstanding Achievement in Science Scholarship

Apr. 2019

- Awarded to the top 5 students in the Faculty of Science at the University of Alberta who also demonstrate exceptional extracurricular activities.

### Alexander Rutherford Scholarship

Aug. 2018

- Awarded to high school graduates with exceptional academic standing over all three years of high school.

## Certifications

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<b>LivingWorks Start</b> LivingWorks	<b>Mar. 2021</b>
<b>Concepts in Safety Leadership – Engineering</b> University of Alberta	<b>Jan. 2021</b>
<b>Class 5 GDL Driver’s License</b> Government of Alberta	<b>Sep. 2020</b>
<b>Construction Safety Training System (CSTS 2020) – Fundamentals</b> Alberta Construction Safety Association	<b>Aug. 2020</b>
<b>Engineering Laboratory Safety Orientation &amp; Training</b> University of Alberta	<b>Jul. 2020</b>
<b>Fundamentals of Reinforcement Learning</b> University of Alberta and Alberta Machine Intelligence Institute on Coursera	<b>Mar. 2020</b>
<b>CCAC Training for Animal Users Part II: The Care and Use of the Laboratory Mouse</b> University of Alberta (Research Area: Health Sciences)	<b>Jun. 2019</b>
<b>CCAC Training for Animal Users Part I: Ethics of Animal Use (IAUTP)</b> University of Alberta	<b>May 2019</b>
<b>Concepts in Biosafety 2018</b> University of Alberta	<b>May 2019</b>
<b>Laboratory and Chemical Safety 2018</b> University of Alberta	<b>May 2019</b>
<b>WHMIS 2019</b> University of Alberta	<b>Jan. 2019</b>
<b>Emergency First Aid Level A CPR and AED</b> St. John Ambulance	<b>Jul. 2018</b>
<b>Diplôme d’études en langues française niveau B1 (translation: French studies diploma level B1)</b> Ministère de l’Éducation nationale (translation: Ministry of National Education)	<b>May 2018</b>