Eddie Guo

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Education

University of Alberta **Sep. 2020 – Present**
Bachelor of Science, Engineering Physics Co-Op GPA: 4.0/4.0

- Awarded over $30,000 for my leadership, research, and academic work at the University of Alberta.
- Awarded a Dean's Research Award from the University of Alberta for exoskeleton research.

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 GPA: 4.0/4.0

- Awarded two grants for research on improving patient outcomes after peripheral nerve injury.
- Transferred to the Faculty of Engineering at the University of Alberta.

Experience

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

- Designing voice-controlled exoskeleton control systems in MATLAB Simulink to help patients rehabilitate after injury.
- Collaborating with engineers and neuroscientists to design safe and natural human-robot interactions.
- Designing human exoskeleton experiments and writing research manuscripts for publication.

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

- Providing personalized support to a class of 160+ honours computer science and computer engineering students.
- Supporting students with algorithms and data structures in Python and C++.

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.

Publications

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*, 2021. (Accepted).

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*, 2021. (Accepted).

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.

Skills

Programming	R, Python, C++, MATLAB, VHDL
Software	Simulink, FMRIB Software Library, Git, LaTeX, HTML, CSS, R Markdown, Microsoft Office
Electronics	Arduino, Raspberry Pi, Zybo Z7 FPGA, Oscilloscope, Digital Multimeter, Exo-H3

Selected Honours and Awards

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.

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.

Volunteering

Youreka Canada **Feb. 2019 – Present**
Vice President, Department of Programs
- Leading researchers, medical students, and undergraduates to develop the Youreka national curriculum, which provides 15,000+ hours of research education for 200+ high school and undergraduate students across Canada.
- Authored an interactive e-textbook on R programming and data science used by 200+ students across Canada.
- Taught a ten-week science program to a cohort of 30 high school and undergraduate students.

Engineering Physics Club at the University of Alberta **Sep. 2021 – Present**
Second Year Representative
- Founder and head editor of the Atom magazine for Engineering Physics at the University of Alberta.
- Advocating for second year engineering physics at the University of Alberta.

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.

Personal Projects

Interactive Statistics Applications **May 2021 – Present**
- Created interactive applications using R Shiny for statistical concepts. View the simple linear regression app.
- Developed the app as a study resource for my peers.

Robotic Arm **Sep. 2020 – Dec. 2020**
- Designed a robotic arm in Fusion 360 and 3D printed the arm. Programmed the arm with C++ on an Arduino.

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.