Carrie Liu

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Honors Biomedical Engineering, Co-op Program   Expected Graduation 2029, GPA 3.93

TECHNICAL SKILLS

Programming: C++, Python, MATLAB, TensorFlow, PyTorch, Git/GitHub, Visual Studio Code, JavaScript
Prototyping: SolidWorks, Arduino, Soldering, 3D Printing, Adobe Illustrator
Microsoft Office Suite: Excel, Word, PowerPoint, Outlook, Teams, SharePoint, Copilot

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WORK EXPERIENCE

Research Assistant   **September 2024 – Present**
Peter S Allen MR Research Centre, University of Alberta
- Developed MATLAB scripts using signal processing and statistical modeling to simulate and evaluate MR signal denoising, enhancing fingerprinting accuracy under low SNR conditions by 35%.
- Designed and assembled IR hardware, including RF coils and sensor circuitry, by soldering, wiring, and testing components to prototype MRI-compatible devices for signal acquisition.
- Built a MATLAB-based GUI tool for MRI slice annotation, reducing image analysis time by 40% and improving inter-user consistency.

Biomechatronics Design Team Member   **September 2024 – Present**
University of Waterloo
- Modeled and 3D printed human spin models in SolidWorks for embedded sensor testing.
- Programmed Arduino-based spin sensors to capture real-time positional data for patient rehabilitation.

Medical Intern   **June 2023 – August 2023**
Grey Nuns Hospital, Edmonton, Alberta
- Developed an EKG strip interpretation manual adopted by IMCU medical staff, applying instructional design and medical knowledge to enhance clarity and improving response time to cardiac events.
- Conducted root cause analyses (RCAs) with hospital administrators to address high-frequency incidents.
- Responded independently to patient calls on the hospital floor to support timely patient care.
- Observed multi-disciplinary care teams (MDs, RNs, RTs), their workflow optimizations and care delivery strategies.
- Managed surgical unit inventory by ordering and restocking medical equipment, ensuring operational readiness.

English and Math Instructor   **January 2022 – March 2023**
Kumon, Edmonton, Alberta
- Taught grade 1-9 students, providing personalized feedback and learning strategies.
- Communicated with parents about academic progress through verbal feedback and written reports.

Debate Coach   **August 2022 – August 2023**
Grandview Heights School, Edmonton, Alberta
- Coached a provincial debate team of 20 students through semi-weekly in-person and virtual classes.
- Supported over 60% of the class in qualifying for the provincial tournament and earning top-tier placements.
- Organized and oversaw regional debate tournaments with 200+ participants.
- Oversaw adjudication and timekeeping at regional tournaments, delivering judges/debaters briefings.

LEADERSHIP

Waterloo Engineering Endowment Foundation Representative   **Sep 2024 – Present**
University of Waterloo
- Represented the Biomedical Engineering Class of 2029 (78 students) in WEEF council meetings.
- Assessed funding proposals to allocate donor funds effectively across the engineering faculty.

BioTEC Pitch Competition Lead   **Sep 2024 – Present**
- Engaged with companies and organizations to secure sponsors for the BioTEC Conference 2025.
- Designed a comprehensive sponsorship framework (tier structures, benefits, and deliverables).

AWARDS AND ACCOMPLISHMENTS
- Undergraduate Student Research Award (NSERC URSA) (2025)
- President's Scholarship of Distinction – University of Waterloo (2024) for 95+ admissions average
- TC Energy STEM Scholarship (2024) | Alexander Rutherford Scholarship (2024)
- 5th Place Nationally – Canadian CyberSTEAM Challenge (2023) | Silver Place – APEGA Science Olympics (2023)