Roy Luo

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https://www.linkedin.com/in/EE-royluo/   https://github.com/ryouol

TECHNICAL SKILLS

- **Programming Languages:** C++, Java, Python, Swift, Javascript, SQL, HTML/CSS, Bash/Zsh
- **Technologies**: AWS, Git, MySQL, AutoCAD, SimScale, KiCAD, Altium, Arduino, STM32, Raspberry Pi

EDUCATION

University of Waterloo   Sept. 2023 - Present

- Candidate for Bachelor of Applied Science in Electrical Engineering, Honors, Co-op

WORK EXPERIENCE

Full-Stack Software Engineer | *Advanced Electrophoresis Solutions*   Jan. 2024 – Apr. 2024| Cambridge, ON

- Utilized **C++, Python**, & **Pascal** for the development of both the front-end and back-end of **icIEF** software.
- Employed **Cryptopp** to build a secure login system, and to encrypt log data, enhancing data integrity and security measures.
- Programmed and controlled a robotic needle on a 2D injection tray matrix.

Staff Sergeant | *Department of National Defence*   Jul. 2023 – Jul. 2023| Vancouver, BC

- Led 90 cadets, imparting STEM concepts through tailored instruction, and inspiring cadets to pursue a career in STEM.,
- Organized model rocket launches, promoting practical application of engineering principles.
- Streamlined **interagency communication by 50%**, enhancing collaboration by creating teams for staff.

Sail Instructor |*Jericho Sailing Center*   Sep. 2022 – Jun. 2023 | Vancouver, BC

- Collaborated with instructors to educate beginners on the physics behind sailing in a classroom setting.
- Provided on-water coaching to intermediate sailors, utilizing a mobile classroom approach to enhance skill development.
- **Ensured optimal learning experiences by adapting** teaching techniques to environmental conditions
- Fostered teamwork among fellow instructors which contributed to a supportive teaching environment.

Founder & President |*BNS Engineering*   Aug. 2022 – Jun. 2023 | Burnaby, BC

- United enthusiasts to explore engineering concepts and hands-on projects.
- Applied and Secured **$ 5,000** in grant awards from the Canadian Physics Society & PAC
- Utilized **AutoCAD** to fabricate **solid-state fuel cell** model rockets, and **STM32 MCU** to program versatile chore-assisting robots.

Assistant Automotive Technician | *Ford Motor*   Jul. 2022 – Aug. 2022 | Burnaby, BC

- Collaborated with mechanics to conduct inspections, utilizing **OBD2** to identify engine codes.
- Performed repairs and maintenance tasks, ensuring vehicles met **quality standards and performance benchmarks.**
- Supported senior technicians in conducting **system tests** on Ford's new electric vehicle line (F-150 Lighting, Mustang Mach-E).

PROJECTS

iOS Dev | *Swift, Xcode, Git*

- Developed a Swift-based iOS app, "R.A.M," designed to securely store and manage vital daily information.
- Utilized **advanced data structures** to efficiently handle sensitive data such as passwords, budgets, and subscriptions within the application, ensuring organized and **optimized data management.**

Speech to Text Device | *STM32, AWS, Edge Impulse, C++*

- Translate analog audio input into text on an LCD screen 89
- **AWS Lambda function** and **Edge Impulse machine learning models** to process converted digital audio data and interface with **AWS Transcribe**

Electric Go-Kart |*C++, Arduino, AutoCAD*

- Constructed an electric go-kart utilizing a **48V battery**, and **1800W DC motor**
- **Embedded device programming with C++** to develop a unique speedometer and **voltage reader.**
- Utilized **AutoCAD** to design, **3D-print,** chain tensioners, throttles, speed controller housing, and cable management system.

Research Experience | *AutoCAD, SimScale*

- Conducted a comprehensive analysis to quantify the effects of rim geometry on the aerodynamic performance of best-selling production passenger vehicles. Utilized **CFD simulations** through **Simscale** to develop **meshes** and calculate drag coefficients.