

Clark Jeffrey

Vancouver, BC

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Key Competencies

Design	• SolidWorks • Blender • Drafting
Manufacturing	• Hand Tools • Drill Presses • Bandsaws • Milling Machines • Lathes • Press Brakes
Prototyping	• Laser Cutters • 3D Printers
Software	• Excel • LaTeX • Word • PowerPoint • Outlook
Development	• Git • GitHub • Visual Studio Code • Linux • Arduino
Languages	• C++ • C • Python • C# • Java • Visual Basic • MATLAB
Certifications	• Emergency First Aid & CPR/AED Level C (2023) • PADI Open Water Diver (2021)

Work Experience

University of British Columbia, Vancouver, Canada

MECH 2 Academic Assistant

(05/2024–present)

- Developing interactive pre-lab problem sets for mechanical engineering labs – with dynamically-created questions individual to each student – using Python and HTML.
- Designing questions which emulate the lab environment, allowing students to perform realistic data analysis.
- Generating synthetic datasets using quadratic regression, Gaussian curve-fitting, matrix manipulation, and symbolic solving of systems of equations, in order to ensure data are realistic, and fit appropriate trends.
- Typesetting fully-worked solutions to pre-lab problem sets using LaTeX.

Student Design Teams

UBC Subbots, Vancouver BC, Canada

Software Developer

(09/2023–present)

- Developing the software required to control our autonomous underwater vehicle (AUV) 'Triton' using Linux, C++, ROS 2, and Git.
- Programming a central 'mission planner' with the 'BehaviorTree' library, which is responsible for coordinating the actions of nodes, interpreting input from sensors, and generating targets.
- Designing a tree architecture capable of supporting parallelism, to improve the AUV's ability to adapt.
- Integrating BehaviorTree nodes with ROS nodes to allow for seamless communication across established ROS topics.
- Updating the Subbots website using HTML, CSS, and JavaScript to increase usability.

Technical Projects

Portfolio Website – Personal Project

(05/2024–present)

- Developed a reactive portfolio website ([found here](#)) from the ground up, using HTML, CSS, and JavaScript.
- Designed a modular framework using JavaScript and JSON, to make it easy to add and update projects.

Chess Engine – Personal Project

(02/2024–present)

- Optimised a recursive search in C++ to evaluate hundreds of thousands of moves in a fraction of a second.
- Implemented an interactive GUI with the use of the wxWidgets library.

Remotely Operated Rough-Terrain Vehicle – MECH 2, UBC

(01/2024–04/2024)

- Determined required torque and gear ratios in order to successfully navigate the competition course.
- Designed and modelled a manual transmission and gear train to facilitate gear changes using SolidWorks.
- Simulated stress on transmission components to assess viability using SolidWorks.
- Prototyped components to identify shortcomings and improve final implementation.

Kitchen Organiser Woodworking Project – GCSE Design Technology

(09/2019–05/2020)

- Planned, designed, prototyped, and constructed a stationery and utensils organiser with an embedded wine rack.
- Modelled the project in Blender, using its realistic lighting and material texturing abilities to create a photo-realistic image.

Education

The University of British Columbia, Vancouver BC, Canada
Bachelor of Applied Science – Mechanical Engineering (Mechatronics)

(09/2022–05/2026)

- Co-op: available for 4 months beginning September 2024
- CGPA: 87.4%
- Related courses:
 - Engineering Science I & Differential Equations for Mechanical Engineering (87%)
 - Engineering Science II & Multivariable and Vector Calculus for Mechanical Engineering (84%)
 - Introduction to Computation in Engineering Design (99%)
 - Introduction to the Mechanical Design Process (83%)

Trek Excellence Scholarship for Continuing Students (2023)

Volunteering

Pan American Hockey Federation, Bermuda

Stream Technician

(04/2022–04/2022)

- Managed livestreams for the Central American and Caribbean 2022 qualifiers held in Bermuda.
- Broadcasted a live view of play, score counts, game timers, and sponsorships to the PAHF YouTube channel.

Personal Interests

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| Music | I've played the cello for 12 years, having passed my ABRSM Grade 8 Cello exam with distinction in 2022. I've participated in many ensembles, including the Bermuda Philharmonic, and have received several music scholarships throughout my education. I also play the piano and bass guitar. |
| Writing | For the past few years, I've been working on writing and typesetting a book in my free time. Reading stories is fun, but creating them is an engaging and rewarding challenge. |
| Baking | Over the weekends, I like taking some time to relax and bake sweet treats. My tried and trues are fudge brownies, butterscotch cookies, and cheesecake bars. They serve as great study motivation! |
| Scuba Diving | During the summers, I enjoy going out to the reefs and wrecks of Bermuda with my dad, and taking some pictures of the beautiful underwater scenery. |