Clark Jeffrey

Vancouver, BC

+1 (647) 379-9531 | cjeffreybda@outlook.com | linkedin.com/in/cjeffreybda

Key Competencies

Design	• SolidWorks • Fusion360 • 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 • C# • Java • Python • Visual Basic • MATLAB
Certifications	• Emergency First Aid & CPR/AED Level C (**2023**) • PADI Open Water Diver (**2021**)

Education

The University of British Columbia, Vancouver BC, Canada (**09/2022–05/2026**)

Bachelor of Applied Science – Mechanical Engineering (*Mechatronics*)

- 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**)

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

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.

Unity Video Game – Personal Project (**06/2020–10/2020**)

- Developed a proof-of-concept video game using the Unity game engine.
- Designed real-time physics simulations for character movement by applying kinematic principles.

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.

Work Experience

University of British Columbia, Vancouver, Canada
MECH 2 Academic Assistant (**05/2024–present**)

- Programming interactive pre-lab problem sets for each lab – with dynamically-created questions individual to each student – using Python and HTML.
- Designing questions for said problem sets which ramp up in difficulty, both to guide students gradually through concepts, and challenge them to apply and integrate knowledge.
- Creating fully-worked solutions to pre-lab problem sets using LaTeX.
- Authoring and typesetting exemplar lab reports for each lab using LaTeX, to assist teaching assistants in grading.

Wesley Methodist Chruch, Bermuda
Videographer and Video Editor (**07/2020–09/2022**)

- Filmed and edited virtual services, including sermons, baptisms, and financial reviews.
- Enhanced accessibility by adding subtitles, lyrics, passages of scripture, and embedded videos using Adobe Premiere Pro.

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

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.