

Clark Jeffrey

Vancouver, BC, Canada

+1 (647) 379-9531 | cjeffreybda@outlook.com | [linkedin.com/in/cjeffreybda](https://www.linkedin.com/in/cjeffreybda) | github.com/cjeffreybda

Core Competencies

Design	• SolidWorks • FMEA • DFM • Drafting • Blender
Manufacturing	• Milling Machines • Lathes • Drill Presses • Bandsaws • Hand Tools • Press Brakes • Laser Cutters • 3D Printers
Programming	• C++ • C • Python • HTML • CSS • JavaScript • MATLAB
Development	• Git • GitHub • Visual Studio Code • Arduino • Linux (Arch, Ubuntu)
Instrumentation	• Simulink • Soldering • Oscilloscopes • Function Generators • Data Analysis
Software	• Excel • LaTeX • Word • PowerPoint • Teams
Certifications	• Certified SolidWorks Professional (CSWP) • Tech Stewardship Practice Program (TSPP) • Emergency First Aid & CPR/AED Level C

Work Experience

The University of British Columbia, Vancouver, BC, Canada

MECH 2 Lab Academic Assistant

(05.2024–present)

- Developed interactive pre-lab problem sets for mechanical engineering labs using Python and HTML.
- Designed questions which emulate the lab environment, allowing students to perform realistic data analysis.
- Generated synthetic datasets using quadratic regression, Gaussian curve-fitting, matrix manipulation, and symbolic solving of systems of equations, in order to ensure data were realistic, and fit appropriate trends.
- Typeset fully-worked solutions to pre-lab problem sets using LaTeX.
- Maintaining pre-lab exercises, and fixing any unforeseen issues.
- Writing exemplar lab reports for marking reference.

Punch Tools Inc., Coquitlam, BC, Canada

Mechanical Designer

(09.2024–12.2024)

- Designed complete punching assemblies for given extrusions in SolidWorks.
- Determined die clearance and tonnage required to properly perforate material.
- Drafted clear and detailed technical drawings for machining.
- Modelled components and tools as-is for reproduction.
- Documented inspections of manufactured parts.
- Rendered photorealistic images and videos of machinery using Blender.

Student Design Teams

UBC Subbots, Vancouver, BC, Canada

Frames & Enclosures Designer

(10.2024–present)

- Developed a buoyancy analysis program to compute force and moment information about assemblies using JavaScript and Onshape's REST API.
- Worked with a team of peers to generate and iterate upon potential designs for a remotely-operated vehicle (ROV).
- Created CAD models of late-stage concepts using Onshape.

Software Developer

(09.2023–10.2024)

- Developed software to control our autonomous underwater vehicle (AUV) 'Triton' using Linux, C++, ROS 2, and Git.
- Programmed a central controller to coordinate node actions, interpret sensor inputs, and generate targets.
- Designed a tree architecture capable of supporting parallelism, to improve the AUV's ability to adapt.
- Integrated BehaviorTree nodes with ROS nodes to allow for seamless communication across established ROS topics.

Education

The University of British Columbia, Vancouver, BC, Canada

(09.2022–05.2026)

Bachelor of Applied Science – Mechanical Engineering (Mechatronics)

- CGPA: 87.3%
- Relevant courses:
 - Introduction to Computation in Engineering Design (**99%**)
 - Introduction to the Mechanical Design Process (**83%**)
- Trek Excellence Scholarship for Continuing Students (2023)*

Technical Projects [\(view all\)](#)

Punch Press – Punch Tools Inc.

(09.2024–12.2024)

- Designed an adjustable punch press which was able to punch a variety of extrusion lengths, with different hole shapes and end offsets.
- Drafted detailed technical drawings of all components, and linked them to a bill of materials.
- Sourced and ordered punches, dies, and fasteners required for the press.

Buoyancy Analysis Program – UBC Subbots

(10.2024–11.2024)

- Developed a buoyancy analysis program to compute force and moment information about assemblies using JavaScript and Onshape's REST API.
- Parallelised API queries to speed up the evaluation process.
- Recursively applied linear transformations to determine each part's absolute position within the assembly.

Chess Engine – Personal Project

(02.2024–05.2024)

- Optimised a recursive search in C++ to evaluate hundreds of thousands of moves in a fraction of a second.
- Utilised low-level bitwise operations to optimise calculations.
- Encoded board positions in a hash structure to allow for fast evaluation lookups.
- Implemented an interactive GUI with the use of the wxWidgets library.

ROV Water Propulsion System – MECH 2, UBC

(03.2024–04.2024)

- Applied fluid mechanics principles to determine required pressure and nozzle geometry.
- Applied solid mechanics principles to assess viability of water propulsion concepts, and minimise component stress.
- Modelled a variety of nozzles in SolidWorks, using equations to automatically create required geometry.
- Prototyped components to fine-tune performance and improve final implementation.

ROV Manual Transmission – MECH 2, UBC

(01.2024–02.2024)

- Determined required torque and gear ratios in order to successfully navigate a 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.

Personal Interests

Music

I've played the cello for twelve 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 pictures of the beautiful underwater scenery.