Clark Jeffrey

Vancouver, BC, Canada

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

Core Competencies

Design	• SolidWorks • FMEA • DFM • Drafting
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) • Emergency First Aid & CPR/AED Level C

Work Experience

Punch Tools Inc., Coquitlam, BC, Canada
Mechanical Designer **(09.2024–present)**

- Designing complete punch and die sets for given extrusions in SolidWorks.
- Calculating die clearance and tonnage required to properly perforate material.
- Drafting clear and detailed technical drawings for machining.
- Modelling components as-is for reproduction.

The University of British Columbia, Vancouver, BC, Canada
MECH 2 Lab Academic Assistant **(05.2024–08.2024)**

- 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.

Student Design Teams

UBC Subbots, Vancouver, BC, Canada
Software Developer **(09.2023–present)**

- Developing software to control our autonomous underwater vehicle (AUV) 'Triton' using Linux, C++, ROS 2, and Git.
- Programming a central controller to coordinate node actions, interpret sensor inputs, and generate 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.

Technical Projects (view all)

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.

Magnetic Levitator – MECH 2, UBC (**08.2023–09.2023**)

- Interpreted engineering drawings in order to create parts to specifications.
- Machined parts accurately using milling machines, lathes, and press brakes.
- Soldered electrical components onto a circuit board cleanly.

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**)

Volunteering

Pan American Hockey Federation, Bermuda

Stream Technician (**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 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.