

# Mara Pajuelo

marapajuelo@gmail.com | +1 236-508-6870 | Victoria, BC, Canada | [LinkedIn](#)

## WORK EXPERIENCE

**Microfluidic Systems Engineer Co-Op** – Cytiva May 2024 – Dec 2024 | Vancouver, BC

- Improved safety, performance, and workflow for wet lab automation devices by ~30% through design and iteration of 3D-printed, sheet metal, and extrusion-based prototypes; created, reviewed, and submitted drawings for manufacturing using SOLIDWORKS.
- Led the lipid nanoparticle morphology study, generating, analyzing, and CryoTEM imaging 50+ particle formulations; delivered findings via a first-author poster and oral presentation at an internal engineering conference, influencing increased project funding.
- Collaborated with project management and QA teams to conduct flow-rate and pressure stability testing on the Ignite system, producing an engineering report with recommendations for high total flow rate operation.

**Mechanical Systems Engineer Co-Op** – Kardium Inc Sept 2023 – Dec 2023 | Burnaby, BC

- Prototyped a custom, portable, collapsible, controlled-lighting box cover for dual-camera tracking system, a clinical training tool mimicking array motion, improving tracking accuracy from 50% to 90%.
- Fabricated and repaired atrial models and catheter deployment tank operating a 3D printer, laser cutter, lathe, mill, manual tools, and UV light curing station.
- Automated the calibration process of a clinical training tool using Python, decreasing calibration time by ~50%.
- Performed root cause investigations on clinical and pre-clinical devices by consulting design, test, requirements, and usability teams, leading to informed IFU and workflow improvements to mitigate clinical risks by ~70%.

**Electrical Test Engineer Co-Op** – University of Saskatchewan May 2022 – Aug 2022 | Saskatoon, SK

- Devised testing plans with 3 undergraduate students to analyze effects of gamma cell radiation on transceivers, cameras, and op-amp resulting in relevant data for \$10K proton-accelerator testing at TRIUMF (Vancouver).
- Generated a custom PCB as an evaluation board to safely test a device leveraging teamwork and problem-solving skills resulting in an ~80% restructured testing robustness.
- Drafted, reviewed, and presented scholarly findings in one NSERC paper outlining effects of gamma radiation on various microelectronics is now being used by MDA Space.

## EDUCATION

**University of Victoria** – Victoria, BC

*Bachelor of Engineering in Biomedical Engineering (B. Eng.)*

Awarded the 2023 Engineering Students' Society Award for community involvement.

Awarded the 2021 Franc R. Joubin Entrance Scholarship for academic excellence.

**Bethlehem Catholic High School** – Saskatoon, SK

*High School Diploma*

Awarded the 2020 Governor General's Academic Medal (Bronze) for achieving the highest GPA in the graduating class (97%).

## TECHNICAL COMPETENCIES

<b>Mechanical</b>	SOLIDWORKS, Fusion 360, 3D printing (Resin and Filament), Machine Shop, Engineering Drawing, Finite Element Analysis (FEA), Geometric Dimensioning and Tolerancing (GD&T), Risk Management (FMEA), Design for Manufacturability (DFM), Technical Documentation
<b>Programming</b>	C, C++, Java, MATLAB, R, Python, GitHub, HTML, CSS, Machine Learning, Computer Vision, OpenCV
<b>Math</b>	Probability, Calculus, Linear Algebra, Statistics, Graphing, Data Analysis, MS Excel
<b>Electrical</b>	Oscilloscope, Multimeter, Circuit Design, Soldering, Altium, Digital Signal Processing, Linear Circuits, Electronic Circuits, Control Theory and Systems, LabVIEW, LTspice

<b>Biological</b>	Sterile Environment & Techniques (Biosafety Cabinet), MIMICS (bone and heart segmentation), Human Physiology, Organic Chemistry, Neurobiology, Cell Biology, Biomechanics, Cell Culture, FDA Regulatory Compliance, Electrocardiography (ECG)
-------------------	---

PROJECTS

<b>High Current Path Design for UVic Formula Racing EV Accumulator</b>	<i>Jan 2025 – Present</i>
--	---------------------------

Owned high current path project, involving design of bus bars capable of handling 150 A and insulative tray casing using SOLIDWORKS; documented engineering analysis in technical report for ENGR 446 (Grade: 98%).

<b>High-Speed Inspection System</b>	<i>Jan 2025 – Apr 2025</i>
-------------------------------------	----------------------------

Implemented state-machine architecture in C for deterministic sensor polling and motor control; sorted 48 objects in 27 seconds, scoring in the top 10% fastest times.

<b>Health Monitoring Wearable Device Start-Up</b>	<i>Jan 2024 – Apr 2024</i>
---	----------------------------

Optimizing cardiovascular health data collection through ECHO Discovery at the University of Toronto.

<b>Assistive Guitar Strumming Device</b>	<i>Jan 2024 – Apr 2024</i>
--	----------------------------

Designed and prototyped an assistive guitar strumming device in collaboration with CanAssist, enabling individuals to play chords with 80% success rate during user trials.

<b>Autonomous Robot</b>	<i>Jan 2023 – Apr 2023</i>
-------------------------	----------------------------

Engineered wall-avoidance and target-detection algorithms using C for an autonomous robot, resulting in a 99% final grade.

REFERENCES

Available upon request.