

Mara Pajuelo

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WORK EXPERIENCE

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- 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

Mechanical	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
Programming	C, C++, Java, MATLAB, R, Python, Git, HTML, CSS, Machine Learning, Computer Vision, OpenCV
Math	Probability, Calculus, Linear Algebra, Statistics, Graphing, Data Analysis, MS Excel
Electrical	Oscilloscope, Multimeter, Circuit Design, Soldering, Altium, Digital Signal Processing, Linear Circuits, Electronic Circuits, Control Theory and Systems, LabVIEW, LTSpice

Biological	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)
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PROJECTS

High Current Path Design for UVic Formula Racing EV Accumulator	<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%).	
High-Speed Inspection System	<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.	
Health Monitoring Wearable Device Start-Up	<i>Jan 2024 – Apr 2024</i>
Optimizing cardiovascular health data collection through ECHO Discovery at the University of Toronto.	
Assistive Guitar Strumming Device	<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.	
Autonomous Robot	<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.	