

Mathias Petersen

MECHANICAL / MECHATRONICS R&D CO-OP

Surrey, BC | mathias@pepservices.com
778-814-7769 | linkedin.com/in/mathiasdp
prometheus-dynamics.ca | github.com/Prometheus-Dynamics

Mechatronics Systems Engineering Student | Founder & Lead Engineer | CAD, Prototyping, Robotics

FOCUS			
Mechatronics engineering student and technical founder with hands-on ownership of a shipped robotics camera from blank-sheet mechanical design through FreeCAD, FDM/resin prototyping, CNC DFM, assembly, testing, and a 50-device production build. Comfortable crossing mechanical, electronics, embedded Linux, and Python to develop and troubleshoot complete prototypes.			
Mechanical ownership enclosure, cooling, mounts, interfaces	FDM + resin PLA, PETG, TPU, CF-filled variants	Prototype to CNC DFM, drawings, vendor coordination	50-device build ~25 units sold and supported

MECHANICAL & TECHNICAL TOOLKIT

Mechanical Design FreeCAD; enclosures, cases, brackets, adapters, faceplates; cooling; threaded features; clearances/tolerances; dovetail mechanisms	Prototyping / Manufacturing FDM and resin printing; design for print; PLA, PETG, TPU and CF-filled variants; CNC DFM; drawings; fit and assembly iteration
Mechatronics / Test PCB/enclosure integration; cameras, LEDs, sensors, power, soldering; assembly, bring-up, functional testing, field troubleshooting	Software / Systems Python, Rust, C++, Java; Linux/embedded Linux; hardware tooling, data processing, automation, web/backend systems

ENGINEERING & TECHNICAL EXPERIENCE

Founder & Lead Engineer Prometheus Dynamics LLP Mar 2023 - Present
- Founded and lead a robotics hardware/software company building affordable vision and control systems for FRC teams and education. - Designed the complete HVS-Raze/Helios mechanical system in FreeCAD from scratch, including the enclosure architecture, cooling solution, PCB/camera mounting, connector interfaces, threaded features, faceplates, and LED integration. - Built and evaluated FDM and resin prototypes in PLA, PETG, TPU, and CF-filled materials; iterated geometry, fit, clearances, assembly, and functional mechanisms, then adapted production parts for CNC. - Coordinated vendor DFM and manufacturing drawings/thread callouts, ordered production parts, and led assembly/testing for a 50-device build; sold about 25 units and supported teams in use.
Tech Mentor & Former Software Lead FRC 6390 Oct 2018 - Present
- Mentor students across CAD review, mechanical/electrical integration, soldering, assembly, programming, and match-season troubleshooting. - Support student-led part and bracket revisions for fit, mounting, and serviceability; previously built reusable Java control layers and autonomous tooling that reduced software bring-up from weeks to days.
Robotics Instructor & Tech Lead Zebra Robotics / FVCA Jul 2023 - Jun 2024
Taught robotics and programming to grades 1-12; maintained and deployed classroom hardware/software systems and internal tools.
IT Technician Kelly Services Canada Mar 2024 - Jan 2026
Completed site installations and diagnostics for POS, VoIP, printers, monitors, workstations, and related hardware across banking and small-business locations.

SELECTED MECHANICAL & PRODUCT WORK

HVS-Raze / Helios Shipped CM5 robotics vision camera combining custom mechanical, PCB, embedded Linux, camera, backend, and UI systems. Product: prometheus-dynamics.ca/products/helios-vision-system-raze	Prototype-to-CNC Enclosure Iterated printed cases and faceplates to evaluate cooling, fit, assembly, connector access, and LED presentation before CNC production. Tools: FreeCAD, FDM/resin prototyping, CNC DFM
Dovetail Latch Prototype Designed and refined a printed dovetail latch with spring-button actuation, tuning geometry and clearances for reliable engagement and locking. Focus: mechanism iteration and functional testing	LED Faceplate Iterations Printed multiple enclosure and faceplate variants to evaluate LED placement, appearance, fit, and assembly before committing to production parts. Built with: FDM/resin prints and real camera hardware

ADDITIONAL EXPERIENCE

Byte Camp Lead Instructor Jul 2022 - Apr 2023 Taught Blender, Godot, Scratch, programming fundamentals, 3D/game projects, and youth technical camps.	McDonald's Crew Trainer Aug 2021 - Nov 2022 Trained new staff, handled fast-paced service operations, safety/sanitation, and practical team communication.
--	--

EDUCATION & CREDENTIALS

Simon Fraser University BASc, Mechatronic Systems Engineering Started Spring 2025 - Expected 2029/2030 Co-op eligible	CompTIA Security+ SY0-701 Active Jul 2024 - Jul 2027	BrainStation Cybersecurity Diploma Completed Jul 2024	North Surrey Secondary Honours Graduate Completed Jun 2023
---	---	--	---