

Mathias Petersen

ROBOTICS / COMPUTER VISION / EMBEDDED

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Founder & Lead Engineer | Robotics Vision Hardware | Embedded
Linux | Rust/C++ | Computer Vision

FOCUS Built and shipped a real robotics vision product: CM5 hardware, custom Linux OS image, camera integration, Rust backend, Svelte UI, CV/runtime libraries, testing, assembly, and team support.			
Camera product shipped FRC teams used it in competition	Full product stack PCB, enclosure, OS, backend, UI	50-device build initial hardware production run	~25 units sold customer/team adoption

TARGET STACK	
Computer Vision OpenCV, AprilTag/ArUco, calibration, camera pipelines, low-latency processing, multi-camera workflows	Embedded / Hardware Raspberry Pi CM5, embedded Linux, Buildroot/Gaia, CSI cameras, custom drivers, PCBs, CAD, CNC enclosure, passive PoE
Robotics FRC/WPILib, autonomous routines, controls, kinematics, PID, robot bring-up, sensors, electrical/mechanical debugging	Languages / Tools Rust, C++, Java, Python, Svelte, TypeScript, Bash, Docker, Linux

RELEVANT EXPERIENCE	
Founder & Lead Engineer Prometheus Dynamics LLP Mar 2023 - Present - Founded and lead a robotics hardware/software company building affordable high-performance vision and control systems for FRC teams and education. - Designed and shipped HVS-Raze/Helios across PCB/CAD, embedded Linux, Rust backend services, Svelte UI, camera integration, assembly, testing, manufacturing coordination, and customer support. - Led a 50-unit initial production run through multiple prototype revisions; sold approximately 25 total units and supported/sponsored FRC teams during the season.	
Tech Mentor & Former Software Lead FRC 6390 Oct 2018 - Present - Mentor students across programming, electrical, mechanical, soldering, troubleshooting, controls, and match-season debugging. - As student lead, built reusable Java control layers and autonomous tooling that helped reduce robot 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; deployed classroom systems including digital signage, cloud storage, CanvasLMS/K3S, and internal management tooling.	

SELECTED PROJECT EVIDENCE + LINKS	
HVS-Raze / Helios Shipped CM5 robotics vision camera: custom PCB/CAD, Rust backend, Svelte UI, camera driver work, assembly, and support. Find: prometheus-dynamics.ca/products/helios-vision-system-raze	Helios Custom embedded Linux OS/image stack for Prometheus camera hardware, CM5 deployment, backend services, UI assets, and CV runtime. Find: github.com/Prometheus-Dynamics/Helios
Eidos Rust CV/image-processing workspace for ArUco, calibration, contours, detectors, filters, geometry, frames, masks, and temporal processing. Find: private: Prometheus-Dynamics/Eidos; demo available	Styx Sync-first zero-copy Rust media pipeline stack for capture, decode, transform, graph integration, recording, and service workflows. Find: github.com/Prometheus-Dynamics/Styx
Daedalus Typed dataflow graph runtime for deterministic planning, CPU/GPU execution paths, plugin nodes, telemetry, and FFI/SDK boundaries. Find: github.com/Prometheus-Dynamics/Daedalus	Lemnos Hardware discovery, driver matching, and runtime interaction layer across GPIO, PWM, I2C, SPI, UART, USB, and Linux backends. Find: github.com/Prometheus-Dynamics/Lemnos
Orion Distributed node runtime with client SDK, operator CLI, control/data-plane split, transports, observability, auth, and audit surfaces. Find: github.com/Prometheus-Dynamics/Orion	FRC-Athena Reusable Java FRC robotics framework: control layers, vendor integration, examples, docs, and faster robot software bring-up. Find: github.com/FRC-6390/FRC-Athena

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