



Paul M. Kruchko

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Professional bio and capabilities

Paul Kruchko is a controls and embedded software engineer with more than 12 years of experience across automotive, military ground vehicles, aerospace and autonomous systems. He founded Dynamis to provide direct, hands-on engineering support from requirements and architecture through implementation, integration and verification.

His work connects control algorithms to the software and electronics that execute them: model-based controls, low-level firmware, real-time platforms and the interfaces between them. A U.S. Army veteran, Paul combines technical leadership with practical delivery and a clear transfer of knowledge to the customer.

Core capabilities

- **Controls and model-based development.** MATLAB, Simulink, Stateflow, [Raptor®-Dev](#) and [Raptor®-Cal](#); engine, transmission, electric drive and supervisory energy controls; calibration and plant modeling.
- **Embedded software and platforms.** C and C++, BSPs and device drivers, FreeRTOS, Linux and QNX; board bring-up, bootloaders, hardware abstraction and modernization of legacy embedded systems.
- **Systems integration and verification.** CAN, J1939, Ethernet and interprocess communication; requirements and interface definition; MIL, SIL, HIL, bench testing, traceability and target debugging.
- **Technical leadership and sustainment.** Architecture and design reviews, hardware/software partitioning, reproducible build environments, engineering mentoring and assessment of legacy software gaps.

Engagements

Defined engineering work packages, architecture reviews, prototype development, platform recovery and integration support. Typical deliverables include working software, documented interfaces, build instructions and verification evidence.

Representative experience

Selected work spans Dynamis consulting engagements and Paul's earlier engineering roles.

Engine controller architecture

Led new hardware and software architecture for natural gas and diesel genset controllers supporting up to eight cylinders. Consulting customers include Methodica Technologies and Western Labs; work includes requirements, hardware/software partitioning, schematic review and technical advisory support.

Hybrid vehicle supervisory controls

Led controls and model-based development for a 40-ton tracked hybrid vehicle at American Rheinmetall Vehicles. Developed production-intent supervisory controls on [Raptor® RCM-112](#) with [Raptor®-Dev](#) and [Raptor®-Cal](#), including high-voltage bus and energy-storage control.

Legacy embedded platform sustainment

Assessed missing BSP and operating-system components in a Vehicle Control and Distribution Module (VCDM) software baseline. Experience includes MPC5554 board bring-up, a FreeRTOS port for the e200 core, CAN/GPIO abstraction, CMake builds and support to M109A7 Paladin technical design evaluations.

Powertrain controls and verification

At Army GVSC, developed diesel, AGT1500 gas-turbine and tracked-transmission controls, including work addressing Abrams engine-controller obsolescence. Applied MIL, SIL and HIL methods and coauthored GVSETS papers in 2017 and 2020.

Real-time software and platform integration

Experience includes safety-oriented C11 diagnostics, fault management, Linux/QNX integration and DDS communication for autonomous vehicles; an x64-to-aarch64 Linux proof of concept on Jetson AGX Xavier; and electromechanical prototype control architectures.

Mission vision and values

Mission. Turn complex controls and embedded-system problems into understandable, verified and maintainable engineering solutions.

Vision. Help customers carry sound engineering from an early concept into systems they can operate, extend and sustain.

Values. Technical rigor, honest communication, ownership of the work and deliberate knowledge transfer.

Credentials: M.S. Electrical Engineering, University of Michigan-Dearborn; B.S. Electrical Engineering, Oakland University. Veteran-owned business. NAICS 541511, 541512 and 541330.