NAVITAS
Vehicle Systems Ltd.

Senior Firmware Engineer – Motor Control Systems
Navitas Vehicle Systems | Waterloo, Ontario

Overview
Navitas Vehicle Systems is a North American leader in electric powertrain technologies, delivering high-performance motor controllers, chargers, and integrated electrification platforms for mobility and industrial applications. As we expand our engineering capacity, we are seeking a Senior Firmware Engineer with deep motor control expertise to drive the development of next-generation embedded control software for our electric drivetrain systems.

Position Summary
The Senior Firmware Engineer will architect, develop, and optimize embedded firmware for high-performance motor controllers, focusing on real-time control, power electronics integration, safety, and system reliability. This role involves hands-on development, advanced algorithm work, and cross-functional collaboration with hardware, systems, and test engineering. The ideal candidate brings substantial experience with motor control algorithms, real-time embedded systems, and production-grade firmware development.

Key Responsibilities
• Develop and optimize motor control algorithms (FOC, torque control, speed control, sensorless control, and related techniques) for electric motors used in Navitas powertrain products.
• Architect and implement embedded firmware in C/C++ for real-time microcontroller environments (ARM Cortex, DSPs, or automotive MCUs).
• Integrate firmware with power electronics, gate drivers, ADC systems, communication buses, and safety subsystems.
• Conduct algorithm tuning, system-level validation, closed-loop testing, and characterization on bench and dyno equipment.
• Support hardware bring-up, debugging, and system integration activities with electrical and test engineering.
• Lead root-cause analysis and corrective action implementation for field issues, reliability problems, or performance deviations.
• Develop and maintain documentation, requirements, design specifications, test plans, and release packages.
• Guide junior engineering staff, contribute to technical design reviews, and support continuous improvement of software processes.
• Ensure compliance with relevant safety, functional safety, and cybersecurity standards as applicable (ISO 26262, MISRA, etc.).

Qualifications
• Bachelor’s or Master’s degree in Electrical Engineering, Computer Engineering, Mechatronics, or similar discipline.
• 7–10+ years of embedded firmware experience, with at least 5 years focused on motor control systems.
• Deep knowledge of electric motor technologies (BLDC, PMSM, AC induction) and advanced

control methodologies.
• Strong proficiency in C/C++ for real-time embedded systems and familiarity with RTOS environments.
• Experience with motor control development tools, control libraries, and simulation frameworks (MATLAB/Simulink, PSIM, TI C2000 ecosystem, etc.).
• Hands-on experience with oscilloscopes, current probes, dynos, and other motor control test equipment.
• Strong understanding of power electronics, inverter architectures, PWM control, and sensing systems.
• Familiarity with communication protocols such as CAN, CANopen, UART, SPI, I2C.
• Experience with software quality, safety, and coding standards (MISRA, static analysis, code review methodologies).
• Proven ability to lead complex firmware releases from concept through production.