David Bejarano

Electronics Enginer/Embedded Software Engineer

Monterrey, Nuevo Leon. Mexico
+52 (646) 102 4322
dbejaranobazan@gmail.com
LinkedIn
(Valid BCC/B1/B2 U.S. Visa)

Summary

Results-driven Embedded Software Engineer with extensive experience in designing, developing, and validating embedded systems for the automotive industry. Proficient in C/C++, Python, and AUTOSAR Classic architecture, with a strong background in ASPICE-compliant processes and ISO 26262 standards. Skilled in configuring AUTOSAR stacks, developing Complex Device Drivers, and working with communication protocols like CAN, I2C, SPI, and Ethernet. Experienced in both software and hardware environments, including analog and digital hardware design, PCB troubleshooting, and advanced control systems. Proven ability to lead projects and collaborate with international teams to deliver high-quality solutions. Seeking to leverage my expertise in embedded systems to drive innovation and excellence in a dynamic and forward-thinking organization.

Professional Experience

Embedded Software Engineer (Automotive) — Monterrey, NL
APTIV Technical Center Monterrey — Jun. 2023 - Present

- Design, develop, and validate ECU Software for L2+ Advanced Driver-Assistance Systems (ADAS) and Body Control Modules (BCM), following ASPICE-compliant processes, to enhance vehicle safety and user experience.
- Use knowledge of hardware-software interfaces to develop AUTOSAR-compliant modules and Complex Device Drivers, using MICROSAR Classic tools like Vector DaVinci Configurator and Developer.
- Develop software for active safety production projects, focusing on Autosar Stack Configuration (I/O Hardware Abstraction, CAN BSW and Ethernet) and Application Layer components such as Diagnostics, Datalogging, Telematics and Firmware Over-The Air; as well as working closely with communication protocols: I2C, SPI, CAN, CAN FD, and Ethernet.
- Design, code, and test C/C++ real-time MICROSAR/Embedded Linux based systems with high quality.
- Collaborate with international agile feature-based and component teams on interfaces and dependencies.
- Triage stakeholder-reported issues.

Embedded Software Engineer Intern — Ensenada, BC
Institute of Astronomy - UNAM — Mar. 2022 - May. 2023

- Developed, maintained, and tested analog and digital hardware for embedded systems; processed astronomical image data.
- Created software solutions using Python/MicroPython, C/Embedded C, basic FreeRTOS, and communication protocols.
- Solved software errors through extensive testing and detailed analysis of program settings.
- Reviewed and validated software functionality, adjusting capabilities based on project objectives and feedback.
- Produced detailed design and code documentation.

Test Engineering Technician (PCB Assembly) — Ensenada, BC
Navico Group — Jul. 2017 - Feb. 2019

- In-Circuit Testing (ICT) and Functional-Circuit Testing (FCT) support.
- Solve test equipment hardware and test sequence malfunctions.
- Schematic Diagrams, Component Datasheets, Bill of Materials reading, analyzing, and verifying.
- PCB fabrication flow, board bring-up, and technical debug/troubleshooting.

Skills

Embedded Software Development

- Classic AUTOSAR stack configuration, MICROSAR Classic, ASPICE V-model, ISO 26262, MISRA C coding standards, Embedded Linux.
- Experience with Infineon 32-bit AURIX TriCore, NXP 64-bit Arm Cortex-A53, other 8-bit microcontrollers and Single Board Computers.
- Communication Protocols: UART, I2C, SPI, CAN, CAN FD, LIN, Ethernet, XCP.
- Vector Toolchain: DaVinci Configurator, DaVinci Developer, CANoe, VectorCAST, vFlash.
- Software debugging-testing tools: Lauterbach Trace32, GoogleTest, Wireshark, TiCS Framework, Coverity.
- Version control: Git, Plastic SCM, TortoiseSVN.
- Application Lifecycle Management (ALM): Polarion.
- UML Modeling Tool: Enterprise Architect.
- Build Systems: GNU Make, CMake, Bazel.
- DevOps Tools: Jenkins, Cloudbees.
- Project management and issue tracking: Jira, Conlfuence.

Programming Languages

- Embedded C/C++.
- Python, MicroPython.
- MATLAB/Simulink.
- Bash/Shell.
- Assembly.
- FreeRTOS.
- LaTeX.

Hardware Development

- Analog, Digital and Power Electronics Hardware Design.
- Microcontroller and Embedded Hardware-Based Design.
- Analog and Digital Signal Processing.
- PCB design, PCB fabrication flow, board bring-up, and technical debug.
- Virtual SPICE Simulator Software: LTspice, NI Multisim, Proteus.
- Hardware debugging Tools: Oscilloscope, Spectrum Analyzer, Multimeter.
- Advanced Control and Chaotic Applications.
- Antennas and Transmission lines design.

Languages

- Spanish, Native proficiency.
- English, Full professional proficiency (TOEFL ITP Score: 603/677).
- Japanese, Professional working proficiency.

Academic Projects

OPTICAM Project Ensenada, BC
Institute of Astronomy - UNAM / SPM Observatory
Designed a camera filter changing system for the 2.1m Telescope at the Mexican “San Pedro Martir National Astronomical Observatory" to automate and upgrade a mechanical system of the OPTICAM instrument. Used ESP32 microcontrollers, C, RTOS, Python, PlatformIO, and serial communication.

Automatic Light Polarimetry Tests Project Ensenada, BC
Institute of Astronomy - UNAM
Provided hardware and software support for a light polarization test project. Solved serial communication problems, added and debugged features, automated processes, and optimized code. Used astronomical cameras, Python, C libraries, and serial communication.

Docker Containers-based Cloud Server Hosted Webpage Ensenada, BC
San Pedro Martir Observatory
Developed a webpage using Docker, MariaDB, WordPress, a Virtual Cloud Server, and a Web domain (davidbejaranob.com).

Education

Bachelor of Science in Electronics Engineering, minor in Telecommunications | GPA 3.84/4.00 (96.12/100)
Autonomous University of Baja California | Ensenada, BC. Mexico

Relevant Coursework and Research

XXXI Summer Internship
San Pedro Martir Observatory | Ensenada, BC. Jun. 2022
"Introduction to Docker Virtualization Containers" research.

Observation Stays
San Pedro Martir Observatory | Ensenada, BC. May 2022 - May 2023
UBVRI cadastre of star clusters.

Advanced Control Systems and Modeling Sensors
Autonomous University of Baja California | Ensenada, BC. 2022
Conducted research and coursework on modeling sensors, advanced control systems, and their applications in chaotic and stochastic systems for encryption at hardware and software levels. Applied theoretical knowledge to real-world scenarios, focusing on system analysis and optimization.

Honors and Professional Certificates

Autosar Architecture Course
Udemy. Feb. 2024

CANoe for Ethernet
VECTOR Informatik. Nov. 2024

Electronics Engineering Alumni Conference Panelist
Autonomous University of Baja California. Apr. 2024