



Stefan Velbl

Embedded Software Engineer

Location: Novi Sad, Serbia

Phone: +381 60 514 72 22

Email: velblstefan@gmail.com

GitHub: [github-stefan-velbl](#)

LinkedIn: [linkedin-stefan-velbl](#)

PROFESSIONAL SUMMARY

Embedded software engineer with 6+ years of experience designing, shipping and supporting production software that other teams and products depend on. I have repeatedly moved across technology stacks, from bare-metal C/C++ on Renesas SoCs, to Model-Based Design on multicore Infineon MCUs, to RTOS-based systems on Qualcomm platforms and became productive in each within weeks. As Technical Coordinator, I also serve as the technical bridge to a strategic client and lead hiring interviews for all engineering teams. For the past two years I have used generative AI and LLM-based tools daily in my engineering work, built end-to-end AI-assisted projects, researched how AI changes the software development process, and actively drive AI workflow adoption within my company.

AI IN ENGINEERING PRACTICE

- **Daily, critical use of LLMs (Anthropic Claude, OpenAI GPT) for 2+ years** across the development lifecycle: design exploration, code generation, code review, test writing, debugging and documentation.
- **Driving AI workflow adoption:** continuously working on internal processes to improve how engineers use AI tools – defining practices, identifying where AI adds real value and where human verification must remain mandatory.
- **Research on AI's impact on software development:** investigated how AI assistance affects productivity, code quality and correctness, including the failure modes where AI output looks plausible but is subtly wrong.
- **End-to-end AI-assisted projects:** built complete applications primarily through AI-driven development (“vibe coding”), taking them from idea to working product and learning where this approach holds up and where it breaks down.

PROFESSIONAL EXPERIENCE

Synchrotek (Novi Sad, Serbia) October 2025 – Present

Senior Embedded Engineer & Technical Coordinator (August 2026 – Present)

- Promoted to a coordination role spanning engineering, client and hiring responsibilities.
- Act as the technical point of contact between a strategic client and the company, translating client needs and escalations into concrete engineering actions, and technical constraints back into terms the client can act on.
- Own resolution of cross-team blockers (e.g. missing tool licenses, major technical issues): assess the problem, assemble the right people across teams and drive it to resolution.
- Organize and run the technical interview process for all engineering teams, defining the process, conducting interviews and assessing candidates' engineering skills.

Senior Embedded Software Engineer (October 2025 – August 2026)

- Own the design of core application components (error handler, state coordinator, safety monitors) end to end. From requirements analysis and architecture to production-ready implementation.
- Integrate AUTOSAR CAN driver stacks into a non-AUTOSAR, custom RTOS-based platform. Adapting third-party software that was never designed for the target environment.
- Develop safety-critical C/C++ software on the Qualcomm SA8650 SoC (SafeRTOS, SAIL platform).
- Implement functional-safety (FuSa) memory concepts. Memory partitioning and protection mechanisms ensuring freedom from interference between components.
- Contribute to company processes for adopting AI-assisted development workflows.

Rimac Technology (Zagreb, Croatia) August 2022 – October 2025

Senior Embedded Software Engineer

- Designed and integrated a complete CAN end-to-end (E2E) protection solution, working directly with MathWorks as an external vendor; our requirements fed into the CAN E2E enhancements shipped in [MATLAB R2024b AUTOSAR Blockset](#).
- Automated the CAN database export pipeline with a custom Python tool, cutting a multi-day manual process to under one hour and removing a recurring source of inconsistent data.
- Reverse-engineered the calibration process of the Infineon TLE4973 current sensor and integrated it into the product, reducing calibration time from 1 hour to a few minutes.

- Implemented resolver angle calibration with precision within 0.2 electrical degrees, required for full powertrain performance.
- Worked on inverter software on the multicore Infineon TriCore TC39x, combining bare-metal C and Model-Based Design (Simulink) under AUTOSAR Classic and ISO 26262.
- Supported software in production-like environments: dyno commissioning, flashing, testing and cross-team troubleshooting.
- Helped establish development processes and toolchains; mentored and led a team of two engineers.

Continental Automotive (Novi Sad, Serbia) July 2020 – August 2022

Embedded Software Engineer

- Designed and built the Event Data Recorder (EDR) module from scratch in C/C++, storing camera images and metadata in serial flash before, during and after a crash.
- Co-developed a generic serial-flash handler service that arbitrates write requests from multiple clients; it was adopted as a shared component by several software modules in the system.
- Wrote unit tests and technical documentation for multiple modules on the Renesas R-Car V3H SoC (AUTOSAR Classic).
- Internship: built a Morse code decoder on ESP32 using FreeRTOS and UART.

Faculty of Technical Sciences (Novi Sad, Serbia) October 2018 – January 2019

Teaching Fellow

- Taught C++ fundamentals and object-oriented programming principles to students.

KEY COMPETENCES

- **Languages:** C/C++ (6+ years, production), Python (automation, tooling, data processing), MATLAB/Simulink, Shell, CAPL.
- **AI & LLMs:** Anthropic Claude and OpenAI models, AI coding assistants and agent-based workflows, prompt design, critical evaluation of AI-generated code.
- **Engineering fundamentals:** concurrency and real-time scheduling, IPC, interface and API design, failure-mode analysis, memory protection, reasoning about and integrating code written by others.
- **Correctness & quality:** ISO 26262 (functional safety), MISRA C, ASPICE, unit testing, code review.
- **Debugging:** multicore debugging with Lauterbach Trace32 and iSystem iC5700; logic analyzers; root-cause analysis across hardware and software layers.
- **Tools & platforms:** Git, Bitbucket, JIRA; Vector CANoe/CANalyzer/CANape; DaVinci Developer/Configurator; SafeRTOS, FreeRTOS, AUTOSAR Classic.
- **Protocols:** CAN, CAN FD, SPI, UART, I2C, XCP, UDS.
- **Spoken languages:** Serbian (native), English (advanced – daily work in international teams).

EDUCATION

Faculty of Technical Sciences, Novi Sad (Serbia) October 2016 – April 2021

Bachelor with Honours in Electrical and Computer Engineering

- Thesis: “PWM Control of a DC Machine Regulated by Speed and Current” (software and hardware).
- SW design: https://github.com/Velbl/DCM_SW
- HW design: https://github.com/Velbl/DCM_HW