BASEL, SWITZERLAND

Dušan Čorlija

Embedded & Systems Software Engineer

dusan.corlija@yahoo.com · github.com/dusancorlija · Basel, Switzerland

01 ABOUT

I'm an electrical engineer who writes software for machines that have to work. Over the past eight years in Austria and Switzerland that has meant **fieldbus slave stacks** for industrial controllers, **C++17 for mechanical ventilators** in intensive care, and **calibration sequences** that drive precision instruments for high-voltage test systems.

The common thread is correctness under constraint: regulated lifecycles under IEC 62304, deterministic communication on real-time targets, and measurement chains where every number has to be traceable. I care about clean interfaces between hardware and software, tests that catch real failures, and documentation the next engineer is glad to find.

02 EXPERIENCE

2026 — Now

Software Developer / System Engineer · Haefely AG

Basel, CH · High-voltage test & measurement

- Develop Qt/C++ calibration software for high-voltage test equipment, including temperature-adjustment calibration sequences.
- Implement instrument drivers and communication layers for precision calibrators (e.g. Fluke 6100A) over GPIB and TCP within a plugin-based framework.
- Validate the full measurement chain together with hardware engineers, ensuring compliance with metrological standards.
- Maintain the build system (QMake, Qt 5.15, MSVC 2019/2022) across a multi-module C++17 codebase.

2021 — 2026

Software Developer · Hamilton Medical AG

Bonaduz, CH · Mechanical ventilators

- Designed and built software features for intensive-care ventilators under the IEC 62304 medical software lifecycle.
- Owned verification of delivered features — unit, integration and regression tests, requirements traceability and release documentation.
- Modelled behaviour in UML (Rhapsody) and prototyped early versions to refine requirements and user interfaces with hardware and QA teams.

2021

Research Scientist · OST University of Applied Sciences

Buchs, CH · Medical device prototype

- Designed software and electronics for a medical prototype in C++ and Python — device drivers, GUI and hardware integration.
- Worked with biomedical engineers, clinicians and regulatory experts on verification and FDA / CE documentation.

2018 — 2021

Embedded Software Developer · Bachmann electronic

Feldkirch, AT · Industrial automation

- Designed and implemented fieldbus slave software for industrial control devices (EtherCAT, Profibus, CAN).
- Developed system software for next-generation controllers in Embedded C on ARM with FreeRTOS and TI-RTOS.
- Wrote product specifications and took features from bring-up on target hardware through testing to release.

2013 — 2016

Academic positions

Belgrade, RS · East Sarajevo, BA

- **Scientific Assistant**, University of Belgrade — research in automation and embedded systems, conference talks, thesis supervision.
- **Laboratory Technician**, University of East Sarajevo — ran laboratory courses for students.

03 SELECTED PROJECTS

HARDWARE · FIRMWARE · 2026

THM-1 — battery e-paper climate meter

A pocket temperature and humidity meter designed end to end: schematic, two-layer board, 3D-printed enclosure and bare-metal firmware. The board, schematic and enclosure are generated from Python scripts (KiCad, CadQuery), so every revision is reproducible.

Circuit simulation in ngspice caught a real fault before manufacturing: switching on the display rail pulled the battery down to 1.3 V and reset the MCU on half-empty cells. Revision 1.1 adds a gate soft-start that keeps the dip under 0.11 V across all tolerance corners.

ALGORITHMS · PYTHON · 2026

Time-dependent routing without Google

A car routing engine for the city of Mostar built purely on OpenStreetMap data — 6,808 junctions, 14,713 directed edges, traffic lights, turn restrictions and hour-by-weekday congestion profiles. Routes compute in about 5 ms at zero running cost.

SYSTEMS · PYTHON · 2026

Pay-at-exit parking controller

Architecture, hardware BOM and controller prototype for small paid car parks: ticket printer, barriers, licence-plate cameras and contactless payment orchestrated by a local controller with simulated devices and an operator panel.

04 EDUCATION

2015 — 2018

Doctoral studies, Software Engineering

University of Belgrade, School of Electrical Engineering · Coursework completed with 9.80 / 10, thesis not defended

2014 — 2015

MSc Electrical Engineering 9.79 / 10

University of Belgrade · Thesis: Optimal deployment of software algorithms in solar stations

2010 — 2014

BSc Electrical Engineering 10.0 / 10

University of East Sarajevo · Thesis: Sensor-based navigation system for autonomous robots

05 TOOLBOX

LANGUAGES
C, C++17, Python, QML, Embedded C

EMBEDDED
ARM Cortex-M, STM32, FreeRTOS, TI-RTOS, bare-metal startup & linker scripts

INTERFACES
EtherCAT, Profibus, CAN, GPIB, TCP/IP, RS-232, SPI, I²C

FRAMEWORKS
Qt 5.15 / Qt Creator, plugin architectures, FastAPI

QUALITY
IEC 62304, unit / integration / regression testing, requirements traceability, Cantata

TOOLING
Git, SVN, Jenkins, QMake, Rhapsody / UML, ArmDS, µVision, Matlab, LabWindows

HARDWARE
KiCad, ngspice, CadQuery, schematic & PCB design, bring-up

SPOKEN
English & German (professional), Croatian (native), French & Spanish (basic)