

Gergely Bilkei-Gorzo

Specialist Embedded Systems



Personal Summary:

I am an automation engineer and PhD candidate at RWTH Aachen's Institute for Automotive Engineering, specializing in software and hardware innovation for embedded systems. I am passionate about driving innovation in software and engineering projects, with a strong focus on efficiency, quality, and impactful results.

Skills

Programming & Development:

- Proficient in C, Matlab/Simulink, and embedded systems (firmware, RTOS, bootloader, protocols, bus communication, circuit design)
- Experienced in Python and C++
- Skilled in containerization using POSIX functions
- Basic experience with container development using Docker

Hardware & Integration:

- Experienced in circuit and PCB layout design
- Extensive experience in hardware testing for series production designs
- Proven track record in system integration for prototype vehicles
- In-depth knowledge of Steer-by-Wire systems

Management:

- Experience in personnel and project management

Languages:

- Hungarian: Native
- German: Bilingual Proficiency
- English: Professional Working Proficiency

Contact

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Work Experience

- 2018 - present | Research Assistant/ PhD candidate**
Institute for Automotive Engineering
- Delivered lectures for various industry partners.
- Designed and developed hardware layouts for both prototype and series production systems.
- Performed hardware testing and provided consultation on recommended improvements.
- Developed software for multiple embedded platforms integrated into prototype vehicles.
- Served as the primary point of contact for customer-related issues.

2024 - present | Specialist Embedded System

- Institute for Automotive Engineering**
- Provided technical lectures for industry partners.
- Developed a container management system for automotive applications.

Education

- 2016 - 2018 | Automation Engineering (RWTH Aachen)**
- Master Thesis: Smart Power Distribution Unit for 48V automotive power net
- Worked as a student assistant on the design and control algorithm for a 400V to 48V DC/DC converter

2009 - 2015 | Mechanical Engineering, Specialization in Automotive (RWTH Aachen)

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Project Overview

Integrated a sidestick steering device into a Ferrari 458 Steer-by-Wire prototype, ensuring seamless functionality with the vehicle's control system.



2019

Performed hardware testing, provided design consulting, managed PCB layout, and developed test software for a serial production automotive ECU.



2020

Developed software for a dSPACE AutoBox analog sensor extension board, enhancing its sensor integration and performance.



Designed and implemented a bootloader and Ethernet driver, and ported FreeRTOS, LWIP, and PTP for an automotive zone ECU used in the UNICARagil autonomous shuttle.



2021

Designed hardware and developed software for a Steer-by-Wire system supporting both hand and wheel actuation. Responsibilities included motor control algorithms, functional software, sensor data processing, and safety-critical steering models considering ISO 26262 requirements. Integrated and tested the system in an AMG GT prototype.



2022

Designed hardware and developed software for a Steer-by-Wire system—including motor control algorithms, functional software, sensor data processing, and safety features—and integrated it into a VW ID.3 prototype considering ISO 26262 safety requirements.



2023

Developed an application management system that leverages the unused computing power of autonomous vehicles for external applications, as part of a doctoral thesis in the AUTOtech.agil project.

