

# Markus Heimerl

Embedded Systems Engineer

## Contact

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🌐 [markusheimerl](#)

## Technical Skills

**Programming**  
C, Python, HDLs  
**Architectures**  
ARM, RISC-V  
**Signal Processing**  
State Space Models, Kalman Filters  
**Hardware**  
PCB, FPGA  
**Safety-Critical**  
AUTOSAR, MISRA C  
**Protocols**  
SPI, I2C, UART, CAN

## Languages

**German**  
Native Speaker  
**English**  
C1 Level (TOEFL iBT 105/120)

## Courses

**Aerial Robotics**  
University of Pennsylvania (2021)  
**Biomolecules and Cell**  
University of Tübingen (2023)  
**Data Literacy**  
University of Tübingen (2023)  
**Advanced Parallel Computing**  
University of Hagen (2024)

## Professional Summary

Embedded Systems Engineer with strong background in signal processing, bare-metal firmware development, and hardware-software co-design.

## Professional Experience

**Automotive Developer** May 2024 - Present  
*intive GmbH, Regensburg*

- Developing automotive ECU network diagnostic and visualization tool
- Leading refactoring effort to improve performance and maintainability

**Software Development Engineer** Jul 2023 - Dec 2023  
*Vector Informatik GmbH, Regensburg*  
Contributed to bootloader development with OTA capabilities for automotive MCUs

**Digital Design Teaching Assistant** Mar 2022 - Dec 2022  
*OTH Regensburg*  
Supported students in comprehensive digital design course and evaluated exercise sheets

## Technical Projects

**Real-Time Flight Control System** 2021 - Present  
*[github.com/markusheimerl/quad](#)*

Autonomous quadcopter with custom PCB, bare-metal firmware, and state space model for IMU sensor fusion and motor control

**RISC-V Processor Implementation** 2022  
*Bachelor's Thesis*  
Implemented RV32I processor in VHDL with VGA controller

## Education

**B.Sc. Computer Engineering** 2018 - 2022  
*OTH Regensburg*  
Embedded Systems, Signal Processing, Real-Time Control, Computer Architecture

## Volunteering

**Event Organizer** Mar 2019 - Aug 2019  
*TEDxOTHRegensburg*

- Implemented online ticketing system for seamless attendee experience
- Recruited speaker and contributed to sponsorship acquisition efforts