

# Markus Heimerl

Embedded Systems Engineer

## Contact

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## Technical Skills

### Programming

C/C++, Python, VHDL/Verilog

### Architectures

ARM, RISC-V

### Signal Processing

State Space Models, Kalman Filters

### Hardware

PCB Design, FPGA Development

### Safety-Critical

AUTOSAR, MISRA C

### Protocols

SPI, I2C, UART, CAN

## Languages

### German

Native Speaker

### English

C1 Level (TOEFL iBT 105/120)

## Certifications

### Aerial Robotics

University of Pennsylvania (2021)

## Professional Summary

Embedded Systems Engineer with strong background in signal processing, bare-metal firmware development, and hardware-software co-design. Passionate about pushing the boundaries of embedded systems.

## Professional Experience

### Automotive Developer

*intive GmbH, Regensburg*

May 2024 - Present

- Developing safety-critical ECU network diagnostic and visualization tool for BMW
- Leading refactoring effort to improve performance and maintainability

### Software Development Engineer

*Vector Informatik GmbH, Regensburg*

Jul 2023 - Dec 2023

Contributed to bootloader development with OTA capabilities for automotive MCUs

### Digital Design Teaching Assistant

*OTH Regensburg*

Mar 2022 - Dec 2022

Supported students in comprehensive digital design course and evaluated exercise sheets

## Technical Projects

### Real-Time Flight Control System

*github.com/markusheimerl/quad*

2021 - Present

Designed complete autonomous quadcopter featuring custom PCB, bare-metal firmware, and experimental state space model implementation for state estimation. System integrates IMU sensor fusion, motor control and vision.

### RISC-V Processor Implementation

*Bachelor's Thesis*

2022

Implemented RV32I processor in VHDL with VGA controller.

## Education

### B.Sc. Computer Engineering

*OTH Regensburg*

2018 - 2022

Embedded Systems, Signal Processing, Real-Time Control, Computer Architecture

## Volunteering

### Event Organizer

*TEDxOTHRegensburg*

Mar 2019 - Aug 2019

- Recruited speaker for the event
- Implemented online ticketing system for seamless attendee experience
- Contributed to sponsorship acquisition efforts