

KARL KÖRNER

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SKILLS

Embedded & Real-Time: bare-metal C, Zephyr RTOS, STM32, nRF, UART/SPI/I²C, GNSS, LoRa

Networking & Simulation: Ethernet/TCP-IP, MAC and routing protocol design, NS3, OMNeT++/FLoRa

Programming & Tools: C, C++, Python, Java, OCaml, Linux, Git, SQL

Languages: German (native), English (fluent)

EDUCATION

ETH Zürich (Swiss Federal Institute of Technology)

M.Sc. in Computer Science

Zurich, Switzerland

Sept. 2026 – expected 2028

- Current courses: Advanced Topics in Communication Networks, Network Security, Security of Wireless Networks

ETH Zürich (Swiss Federal Institute of Technology)

B.Sc. in Computer Science, GPA: 5.04/6.0

Zurich, Switzerland

Sept. 2022 – Sept. 2025

Gerhart Hauptmann Gymnasium

German Abitur, GPA: 1.0 (best possible), DPG Physics Award

Berlin, Germany

2015 – 2021

WORK EXPERIENCE AND PROJECTS

Contention Detection on the Internet - ETH, Networked Systems Group

Measurement study on whether Internet flows actually compete for bandwidth

Zurich, Switzerland

Oct. 2026 - ongoing

- Developing a custom congestion control algorithm to detect path contention and extending existing active measurement techniques.

Guided Research Project - TUM, Chair of Connected Mobility

Distributed Storage in LEO Satellite Networks

Munich, Germany

Dec. 2025 - ongoing

- Extending a published in-orbit distributed storage system (LEO-NET '25) from an idealized simulator to packet-level NS3 simulations with realistic orbital dynamics (Code on GitHub).
- Identified the constraints that break the original design and developed a ring-based routing algorithm with a conflict-free protocol for relocating the routing structure under satellite motion.

Working Student at Infineon Technologies

Low-Level Embedded Software for Microcontroller Communication

Munich, Germany

Dec. 2025 - June 2026

- Developed and debugged bare-metal Ethernet/TCP-IP communication software for networked microcontroller-based control units.

Bachelor Thesis Project - Prof. Luca Benini, Center for Project-Based Learning

Event-Driven Wireless Sensor Network for Real-Time Data Acquisition

Zurich, Switzerland

Feb. 2025 - June 2025

- Developed firmware in C on Zephyr RTOS for nRF sensor nodes with GNSS-based real-time event detection.
- Designed a hybrid MAC protocol (listen-before-talk with exponential backoff + selective ACKs) and validated it in OMNeT++/FLoRa as well as on real hardware.

Nautilus - ARIS (Academic Space Initiative Switzerland)

Development of embedded software for an unmanned underwater vehicle

Zurich, Switzerland

Sept. 2023 - Mar. 2024

- Implemented UART-based communication protocols for internal data exchange on STM32.