

Ferdinand Köppen



Full-Stack Engineer • Former Co-Founder & CTO
• MSc Candidate

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SKILLS

LANGUAGES

Proficient:

TypeScript • JavaScript • Python • SQL • Java • Bash • Lua • Matlab

FRONT-END

React • Next.js • HTML5 • CSS3 • REST • WebSockets

BACK-END & DATABASES

Spring Boot • Node.js • RESTful APIs • Microservices • PostgreSQL • TimescaleDB • Query Optimisation

DEVOPS & INFRASTRUCTURE

Docker • GitHub Actions • GitLab CI • Ansible • Nginx • Traefik • Prometheus • Grafana • WireGuard • OpenVPN • DNS Management

NETWORKING & INDUSTRIAL

TCP/IP • VLANs • Firewall Management • OPC UA • Modbus • SCADA • PLC Interfacing

PRACTICES

Agile / Scrum • Domain-Driven Design • Code Review • Technical Documentation • Customer Workshops

EDUCATION

MSC IN ARTIFICIAL INTELLIGENCE AND CYBERSECURITY

October 2024 - est. August 2026 | AAU, Klagenfurt

Thesis: Improving video retrieval systems with LLMs

EXTENSION STUDIES: SOCIAL COMPETENCE AND ORGANIZATIONAL LEARNING

March 2024 - est. March 2027 | AAU, Klagenfurt
Practical social and management Skills training, process consulting, mediation

PROFILE

Versatile software engineer and former CTO and Co-Founder with extensive hands-on experience across the full stack, infrastructure, and industrial systems integration. Comfortable bridging technical depth and business requirements — from architecting React/TypeScript front-ends and Java/Python back-ends to managing Postgres at scale, self-hosting critical services, and integrating OPC UA / custom control-system protocols. Currently completing a Master's degree while continuing to bring a strong product mindset and customer-centric development approach to every engagement.

WORK EXPERIENCE

AVEMOY FLEXC0 | SENIOR SOFTWARE ENGINEER, TECHNICAL CONSULTANT
Oct. 2024 – Current | Klagenfurt, Austria

- Design and implement a local vision AI pipeline, for local video processing on Nvidia Jetson Orin.
- Developing parts of said vision AI pipeline.
- Implement a customizable data processing pipeline and dashboard for the customer, to see the evaluated results.
- Responsible for Hardware decisions regarding the processing pipeline.
- Automation and standardization of Operating systems and software installment for customer Hardware.

SENSOLLIGENT GMBH | CO-FOUNDER & CHIEF TECHNOLOGY OFFICER (CTO)
July 2018 - April 2024 | Klagenfurt, Austria; Frankfurt, Germany
Full Stack:

- Led end-to-end technical strategy and a team of 7 engineers; defined architecture standards, introduced CI/CD pipelines
- Oversaw full-stack product development using **React**, **TypeScript**, and **Java**, aligning engineering roadmap with business objectives.
- Managed **PostgreSQL** databases in production: schema design, query optimization, replication, and backup strategy for high-availability systems.
- Implemented caching strategies according to the usage of our data API.
- Established self-hosted infrastructure (on-prem and cloud hybrid) including monitoring, log aggregation, and automated failover.
- Drove customer-facing requirements workshops, translating domain needs into implementable technical specifications.
- Took ownership of networking configuration (VPNs, reverse proxies, firewall rules) for self-hosted deployments.
- Implemented custom metrics for customers, according to their needs.
- Developed custom communication adapters for industrial control systems using custom TCP and OPC-UA.
- Participated in requirements gathering sessions with end-users; documented workflows and translated them into backlog items.
- Build an international second office for the company in Frankfurt, Germany.
- Integrating data pipelines into existing customer SCADA systems.

Unity 3D:

- Lead a team to further continue the 3d modeling software for processing plant planning.
- Lead a team to implement B2B Augmented Reality applications for iOS and

TUTOR FOR WIRELESS SENSOR NETWORKS

March 2018 - June 2018 | AAU, Klagenfurt
Designed and created reference implementations for student tasks in the wireless sensor domain

BSC IN INFORMATION AND COMMUNICATIONS ENGINEERING

March 2012 - October 2024 | Klagenfurt, Austria
Thesis: Swarm Algorithm Micro Behaviors

PROJECTS

LARGE-SCALE VIDEO RETRIEVAL WITH VISION LANGUAGE MODELS

<https://www.dhinfra.at/2026-03-16-gpu4u-koeppen-video-retrieval/>

Android for our customers to show their processing machines to their customers.

- Implemented applications for Hololense 1 and 2 for customer presentations of large wood processing plants.
- Implemented Virtual Reality applications for customer presentations of large wood processing plants.

SENSOLLIGENT GMBH | CO-FOUNDER & 3D SOFTWARE ENGINEER

February 2018 - July 2018 | Klagenfurt, Austria

- Implemented a visual 3D modeling software using Unity 3D for wood processing plants, to visualize and simplify planning processes
- Streamlining workflows from the planning phase to production, eliminating friction and uncertainties, reducing planning cost and time.

BITMOVIN INC | JUNIOR SOFTWARE DEVELOPER

June 2016 - February 2018 | Klagenfurt, Austria

- Full Stack developer (Java Script using React, Java using Spring Boot)
- Responsible for creating workflows to document the Backend API using Apiary