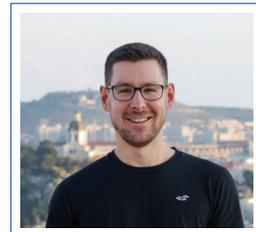


# Kevin Kettinger

*Freelance software developer*

+49 1764 721 50 74  
kkettinger@gmail.com  
Karlsruhe, Germany



## Areas of Expertise

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- Embedded Software Development in C/C++.
- Creation of Embedded Linux Distributions with Yocto.
- Backend Development in C++, Golang and Rust.
- Frontend Development in JavaScript, TypeScript, and Svelte.

## Skills

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- **Programming languages:** C/C++, Golang, Rust, Javascript, Typescript, Python, PHP, HTML, CSS
- **Embedded:** Yocto, Linux, Kernel-Entwicklung, Device-Tree, U-Boot, Mender, RAUC
- **Frameworks:** Qt, Slint, Unified Automation, Svelte
- **Hardware platforms:** PC, ARM, STM32, nRF51, ATmega, RaspberryPi, Tinkerboard, Toradex
- **Communication technologies:** Bluetooth Low Energy (BLE), WLAN, LoRaWAN
- **Communication protocols:** MQTT, RabbitMQ, AMQP, OPC-UA/DA, I2C, SPI, CAN, UART, Ethernet, TCP/IP, UDP, JSON, MessagePack, HTTP
- **Databases:** MongoDB, PostgreSQL, MySQL, SQLite, Oracle
- **CI/CD:** Gitlab, Jenkins, Docker, Bamboo, Bitbucket
- **Development environments:** Visual Studio Code, CLion, QT Creator, Visual Studio, Eclipse, LPCEXpresso, Keil µVision, Android Studio
- **Tools:** GIT, SVN, Docker, GDB, Valgrind
- **Languages:** German (mother tongue), English (C1)

## Training

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- **Electrical Engineering - Information Technology**, B. Eng., Karlsruhe University of Applied Sciences
- **Apprenticeship as IT specialist in system integration**, Göppingen

## Project history

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### **Build-Engineer**

*Vorwerk, Wuppertal*

**remote**

*June 2023 - today*

Supported maintenance and extension of a Yocto-based build environment, as well as development and scaling of the associated software toolchain. Performed issue analysis across the build system, CI/CD pipeline, and end-user application. Evaluated and integrated analysis and coverage tools. Continuously optimized existing build processes.

Languages            C/C++, Python, Bash  
Technologies        Yocto, Docker, Gitlab, Jenkins, CMake, Git

### **Software Developer**

*SWARCO, Gaggenau*

**remote**

*February 2021 - July 2024*

Further development of the traffic management software for controlling and managing road traffic, migration from classic Makefiles to modern CMake, introduction of software versioning with GIT. development tools with Qt, Golang and C++. Support in the migration from Oracle to MongoDB in the existing software architecture, migration of the existing data communication to RabbitMQ/AMQP in the existing software architecture, and support in the containerisation of the existing software architecture with Docker.

Languages            C/C++, Golang  
Technologies        Qt, Visual Studio, CMake, Docker, RabbitMQ, MongoDB

### **Software Developer**

*Faseroptik Henning, Allersberg*

**remote**

*May 2023*

Migration of the existing TrafficLux touch input device software for controlling the mobile LED text display for escort vehicles from C++/Qt/QML to Rust/Slint.

Languages            Rust, Slint  
Technologies        Yocto  
Platforms            Linux, Embedded, Toradex iMX6

### **Software Engineer**

*Faseroptik Henning, Allersberg*

**remote / on-site**

*November 2022 - March 2023*

Conception and development of the software of a test device for testing optical fibres, creation of an operating system based on Yocto/meta-raspberrypi, and image update with RAUC. Control of a stepper motor via I2C, development of a frontend based on Svelte (Javascript framework), and development of a REST backend in Golang.

Languages            Golang, Typescript  
Technologies        Svelte, Chromium, REST, Yocto, RAUC, Raspberry Pi, I2C

**Software Developer***Valeo, Friedrichsdorf***remote / on-site***June 2022 - September 2022*

Development of test cases for an existing embedded telematics project and creation of the associated documentation.

Languages            C++  
Technologies        Yocto  
Platforms            Linux, Android, Embedded

**Build Engineer***MESOMATIC, Schorndorf***on site***June 2020 - January 2021*

Commissioning of the STM32MP1 SoM from BytesAtWork on a custom board, setup of the Yocto build environment, creation of a Linux image with Yocto, integration of peripherals in Linux/device tree, including Ethernet PHY, LTE, WiFi and LoRaWAN. Adjustments to the device tree, U-Boot and kernel. Creation of a VM for Linux (A7) and embedded (M4) development with the Eclipse/Yocto toolchain.

Technologies        Yocto, Device-Tree, Kernel, U-Boot, USB, SDIO, SPI, I2C, WLAN, LTE, LoraWAN  
Platforms            Linux, Embedded

**Software Engineer***Faseroptik Henning, Allersberg***remote***May 2020 - today*

Conception, new development and support of the TrafficLux touch input device for controlling the mobile LED text display in Linux/Qt/C/C++ (previously: WinCE). Creation of a Linux image with Yocto for the Toradex Apalis iMX6 platform and integration of an LTE/GNSS module via mini-PCIe for the existing hardware. Development of a QML application with functions for controlling the LED display panel (RS232), logging commands and GNSS positions, integration of the application in Yocto and adaptation of kernel parameters. Design of the LTE/GNSS antennas and implementation of real-time tracking via LTE/MQTT with visualisation using the IoT platform Thingsboard. General support in day-to-day development.

Languages            C++  
Technologies        Yocto, Device-Tree, Kernel, U-Boot, USB, SDIO, SPI, I2C, WLAN, LTE, LoraWAN  
Platforms            Linux, Embedded

**Software Engineer****remote***CST, Waldshut-Tiengen**April 2019 - December 2021*

Connection of the optical measuring system to a PLC via OPC-UA, including the development of an OPC-UA library for further internal products and developments. Evaluation and commissioning of an OPC-DA to OPC-UA proxy at the customer's site and testing of the library/connection on site at the customer's production facility. Development of a test client/server for offline simulation. Development of a Rest API (JSON) interface for the optical measurement system with authentication and role management. Development of a web interface with connection to the Rest API (JSON) for displaying result values and configuring parameters. Development of a camera viewer in Qt/QML for the platform-independent live display of camera data.

Languages C/C++, Python  
Technologies OPC-DA, OPC-UA, Unified Automation, REST(JSON), cpprestsdk, Django, Qt/QML  
Platforms Linux, Embedded

**Software Engineer****remote***J. Bisch Engineering, Bruchsal**January 2019 - March 2019*

Development of e-commerce interfaces between JTL-Wawi and various shop systems and online accounting service provider.

Languages PHP  
Technologies Symfony, MySQL, REST (JSON)  
Platforms Linux

**Software Engineer****remote***Domus7, Karlsruhe**January 2019 - February 2019*

Development of a prototype for recording long-term measured values (temperature, humidity, air pressure) using a BMA280 (Bosch) sensor.

Languages Python  
Technologies I2C, Gnuplot, Docker  
Platforms Linux, Embedded

**Software Engineer****remote***J. Bisch Engineering, Bruchsal**April 2019 - March 2019*

Design and development of an interface software for Windows operating systems with Qt, which transfers data records from an MSSQL database to an external REST API (JSON). Design and development of an access control system for construction sites with a web frontend that is connected to the hardware (turnstiles) via a REST API (JSON). Documentation and commissioning at the customer's site.

Languages C++  
Technologies Qt, REST (JSON), MSSQL  
Platforms Windows

**Bachelorthesis****on site***WISI Communications, Niefern-Öschelbronn**May 2017 - February 2018*

Design and development of an Android app for transparent transmission of the web interface of an existing DVB headend via Bluetooth LE 4. Setup of a Bluetooth mesh network using several Bluetooth smart on-chip microcontrollers (nRF51822). Design and development of a network protocol for the transmission of data, based on OpenMesh. Test and implementation of the protocol in the final product.

Languages C/C++  
Technologies Bluetooth Low Energy, OpenMesh, mercurial, MessagePack, Qt  
Platforms Embedded, Android

**practical semester****on site***Armaments industry, near Augsburg**March 2016 - August 2018*

Development of a GUI in Qt to display radar data (FMCW, Range-Doppler-Matrix) in real time from the signal processing part, including the implementation of a detection algorithm (CFAR). Test and setup of the antenna system and performance of antenna calculations.

Languages C/C++  
Technologies Boost, Qt, Matlab, subversion  
Platforms Linux, Windows

**Software Developer****on site***M. Rösch Engineering, Karlsruhe**September 2017 - November 2017*

Realisation of a customer tracking system based on WLAN probe requests. Implementation of the software on a Raspberry Pi.

Languages C/C++  
Technologies MySQL, aircrack, WLAN, git  
Platforms Linux, Embedded

## Permanent positions

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- **Network and system administrator** at CNS-IT in Filderstadt. December 2009 - August 2012.
- **Software Developer** at Ruatti Systemtechnik in Uhingen. July 2009 - December 2009.