

Lars Weber

*Embedded Software Development,
DevOps, Full-Stack*

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Recent Projects

- 2023-02–present **PIA Project**, *Software Developer, Software Architect, DevOps*.
Support and further development of the PIA system and associated apps (Ionic Framework, Angular, Keycloak, Kubernetes, Docker, TypeScript)
- 2022-05–present **IoT Management Platform**, *Software Developer*.
Development of a scalable, highly available IoT management platform and connection of an IoT fleet (GitLab, Prometheus, Labgrid, Kotlin, Kubernetes, Scrum, Go, Wireguard, Critical Infrastructure, Spring Boot)
- 2018-04–present **Embedded Docker IIoT System**, *Software Developer, Software Architect*.
Development of a Docker-based embedded system with Angular UI. Programming and control of an additional microcontroller for real-time tasks using FreeRTOS (ARM, Docker, Angular, USB, RS485, Modbus, GitLab CI, SPI, I2C, Industrial Internet of Things, Internet of Things, Modbus-TCP, Cypress, FreeRTOS, Node.js, IO Link, Kanban, TDD)
- 2018-01–present **IoT Remote Maintenance Software**, *Software Developer, Software Architect, DevOps*.
Development of remote maintenance software for IoT devices and a connected management platform (IoT, Internet of Things, Kubernetes, Helm, nginx, MongoDB, InfluxDB, Bootstrap, Angular, Grafana, TypeScript, Go, Rust)
- 2024-02–2025-03 **Ethernet SMGw**, *Software Developer*.
Development of a scalable Ethernet solution for Smart Meter Gateways. Connection to a Smart Meter Gateway Administrator service provider. Management of an IoT fleet (OpenWRT, Embedded Linux, AWS, Kubernetes, Ansible, ArgoCD, nginx, IPv4, IPv6, IP-Routing, Rust)
- 2023-09–2024-12 **Building a CI/CD Pipeline on Kubernetes Basis**, *DevOps Engineer*.
Building a CI/CD infrastructure on customer hardware with the objective of achieving a stable, accelerated, and scalable workflow. Adaptation of existing CI steps for more stability and performance. Building SBOM generation (Kubernetes, GitLab, Grafana, helm, cdk8s, Docker, Harbor, TypeScript, NestJS)
- 2022-12–2023-12 **Building a Highly Available Kubernetes Cluster**, *DevOps Engineer*.
Development of a concept for automated setup and operation of a cloud-provider agnostic highly available Kubernetes cluster (Wireguard, ArgoCD, Kubernetes, Helm, Authelia, nginx, DevOps, TypeScript, High Availability, Redundancy, Domain Name Server)
- 2023-04–2023-05 **Further Development of an IIoT Redundancy System**, *Software Developer*.
Further development of an IIoT redundancy system based on DRBD and Heartbeat (DRBD, Heartbeat, TypeScript, High Availability, Network/Security)
- 2022-11–2022-12 **PIA Project (Migration)**, *DevOps Engineer*.
Migration of a CI/CD workflow into a Kubernetes cluster (Kubernetes, CI/CD)
- 2021-08–2022-12 **ERP System Development**, *Software Developer, Software Architect*.
Further development of a customer-specific ERP system (Kubernetes, docker, Node.js, Helm, Grafana, TypeScript)

- 2021-09–2022-06 **IIoT Radar Fill Level Sensor**, *Software Developer*.
Development of a radar-based IIoT fill level sensor (Embedded Linux, Radar Sensing, I2C, C, C++, SPI)
- 2022-02–2022-05 **PIA Project (Scrum Team)**, *Software Developer*.
Development in Scrum team for PIA-App (Fullstack, TypeScript, Scrum)
- 2021-12–2022-03 **Interactive App with Backend**, *Software Developer, Software Architect*.
Further development and maintenance of an Ionic app with associated backend (Ionic, Angular, Node.js, Django, TypeScript, Python)
- 2021-08–2022-03 **Embedded Update System**, *Consultant, Software Developer*.
Development and implementation of an update concept for an Embedded Linux system (Embedded Linux, Go, Linux, Bootloader)
- 2021-04–2022-02 **PIA Project (DevOps)**, *Software Developer, DevOps*.
Software development in Scrum team. As well as DevOps pipeline development and support (Node.js, Ionic, Keycloak, Cypress, Scrum, Gitflow, DevOps)
- 2021-05–2021-07 **Concept for Fault Tolerance and Redundancy in an IIoT System**, *Consultant, Advisor, Software Architect, Software Developer*.
Analysis of an existing IIoT system and development of a redundancy concept (Embedded Linux, NestJS, Rest, MQTT, Angular, Docker, TypeScript, Microservices)
- 2021-04–2021-06 **Error Analysis and Resolution in a Medical Embedded System**, *Software Developer*.
Problem analysis and stabilization of the Linux kernel used. Integration of the customer-specific board into the current mainline Linux version (Embedded Linux, Yocto, C, Low-Level HW Driver, Real-time Operating System)
- 2020-06–2021-03 **Building a CI/CD Pipeline for a Project with Microservice Architecture**, *DevOps Engineer, Fullstack Developer*.
Implementation of a build pipeline in GitLab CI including automated tests and automatic deployments. Side activity as Fullstack Developer (GitLab CI/CD, PostgreSQL, Python, Ansible, nginx, Angular, Linux, Keycloak, Ansible-Tower, Scrum, Microservices, Gitflow)
- 2020-01–2020-12 **Error Analysis and Bug Fixing in a Medical Embedded System**, *Software Developer*.
Problem analysis and stabilization of the Linux kernel used. Integration of the customer-specific board into a current Linux version (Embedded Linux, CAN, SSI, Qt, Yocto, i.MX, Analysis Skills)
- 2018-05–2020-12 **IoT Analysis Platform**, *Software Developer, Software Architect, DevOps*.
Development and operation of an online analysis platform for IIoT devices (Grafana, InfluxDB, Docker, Node.js, Angular, Bootstrap, TypeScript)
- 2019-03–2019-07 **IoT Measurement System**, *Software Developer, Software Architect*.
Development of an IoT system on Linux basis with measurement value transmission (ARM, Go, Golang, I2C, SPI, Docker, Embedded Linux, MQTT, WiFi, TDD)
- 2019-05–2019-06 **Energy Data Acquisition System**, *Software Developer, Software Architect*.
Development of a software system for energy data acquisition and analysis (Modbus, SML, Go, Grafana, Influx, ARM, Embedded Linux, TDD)
- 2018-11–2019-04 **User Management Service**, *Software Developer*.
Development of a highly available and scalable user management service based on Keycloak (Docker, Kubernetes, Keycloak, TypeScript, REST, TDD, Scrum)
- 2018-12–2019-03 **Job Portal**, *Software Developer, Software Architect*.
Development of an interactive job portal with Angular (Angular, GitLab, CI/CD)

- 2018-08–2019-01 **Code Generator for Model-Driven Software Development**, *Software Developer*.
Development of code generators (C# and TypeScript) for model-driven software development using XSD models and integration into Bamboo (Bamboo, Scrum, TypeScript, XSD, C#)
- 2017-11–2018-12 **WAN SIP Gateway**, *Software Developer, Software Architect, DevOps*.
Development of a WAN SIP gateway for reachability of individual isolated devices over the public Internet. The individual devices communicate via encrypted authenticated tunnels with the ALG which in turn is reachable from the public Internet via apps. Load balancing via own DNS server in distributed Docker Swarm. Monitoring via Node.js, InfluxDB, Grafana stack (SIP, Docker, InfluxDB, Grafana, Node.js, C#, TypeScript, DevOps)
- 2014-08–2018-12 **IP Gateway**, *Software Developer, Software Architect*.
New development of a gateway system from a proprietary house communication bus to SIP telephony with video transmission (32-Bit Microcontroller, 8bit Microcontroller, i.MX6, Embedded Linux, AVR, Atmel, WLAN, Asterisk, NUnit, ARM Cortex, h264, MJPEG, Yocto, Buildroot, RTP, SIP, Application Architecture, Embedded, Security Technology, Kanban, IT Security)
- 2015-02–2018-01 **Touch Door Intercom**, *Software Developer, Software Architect*.
Development of a door intercom with touchscreen operation (i.MX6, Linux, JSON-RPC, JSON, XML, 32-Bit Microcontroller, 8bit Microcontroller, Docker, NUnit, ReactJS, Qt, Qt5, QML, Yocto, Buildroot, HTML5, C#, C++, JavaScript)
- 2015-09–2017-06 **TVT100**, *Software Developer*.
Bug fixing and further development of a CRM system (Visual Basic .NET, MySQL)
- 2014-06–2017-06 **i.MX6 Baseboard**, *Software Developer*.
Development and integration of software for a custom i.MX6 board (bootloader, Linux kernel, RootFS, application framework, update system) (i.MX6, Mono, ARM, ARM Cortex, Das U-Boot, Yocto, Device driver development, Bootloader, Embedded Linux, 32Bit Operating System, DDR RAM, SPI, I2C, Linux Driver Programming, Low-Level HW Driver)
- 2017-01–2017-03 **Implementation of a Highly Available Server Cluster**, *Software Developer, DevOps*.
A highly available server cluster based on Docker Swarm was implemented. This also included migrating existing services to this cluster. Furthermore, monitoring at server, cluster, and application level was set up using Grafana (Docker, Docker Swarm, Node.js, nginx, Grafana, InfluxDB, Cloud, SOA, Client/Server, High Availability, TypeScript)
- 2016-06–2016-12 **Ostwestfalentunnel SCADA**, *Software Developer*.
Development of a framework for creating SCADA interfaces (C#, SCADA, Node.js, Agile Software Development, Client/Server, JavaScript)
- 2014-06–2016-07 **Effigo**, *Software Developer*.
Development of a modular SCADA system as HTML5 single page application. Used for control and monitoring of the Gotthard tunnel (Node.js, HTML5, Dojo Toolkit, Client/Server, Responsive Web Design, JavaScript)
- 2016-03–2016-06 **FutCom2 Cologne**, *Software Developer*.
Development of a protocol converter for Dynamic Route Guidance Signs with integrated traffic jam information (dWiSta) (ARM9, Embedded Linux, C#)
- 2015-05–2016-06 **Sign Controller**, *Consultant, Software Developer*.
Development of a sign controller for controlling LED panels (AVR, 32-Bit Microcontroller, I2C, AVR32, RS485)
- 2016-04–2016-05 **DUE Export**, *Software Developer for SSI SCHÄFER - Fritz Schäfer GmbH*.
Development of software for export from DUE files (AutoCAD, Node.js, JavaScript)

- 2012-07–2015-11 **PLS Wetzlar**, *Software Developer*.
Maintenance and extension of the parking guidance system of the city of Wetzlar (VBA, Delphi)
- 2015-06–2015-10 **CASA Light Door Intercom**, *Software Developer*.
Development of FPGA software for generating a dynamic on-screen menu and image processing (Altera Cyclone, Altera Quartus, VHDL, FPGA)
- 2012-04–2015-10 **PLS Hamburg**, *Software Developer*.
Maintenance and extension of the parking guidance system at Hamburg Airport. Implementation of a highly available, redundant server system for minimized downtime during hardware failures or maintenance (Visual Basic .NET, Linux, Windows Server, MySQL, C#, Network Architecture, IP Network)
- 2014-02–2015-04 **PLS Bruges**, *Software Developer*.
Maintenance and extension of the parking guidance system of the city of Bruges. Implementation of a highly available, redundant server system for minimized downtime during hardware failures or maintenance (DRBD, Heartbeat, Visual Basic .NET, Windows Server, Linux, Cluster Administration, C#)
- 2013-01–2015-04 **dWiSta Cologne**, *Software Developer, Consultant*.
Software maintenance and bug fixing in PLC control software for Dynamic Route Guidance Signs with integrated traffic jam information in the Cologne area (PLC Programming)
- 2014-08–2014-11 **CASA**, *Software Developer*.
Development of software for an indoor intercom for house communication with C++, Qt and QML (Embedded Linux, QML, Qt, Qt5, SQLite, Buildroot, Low-Level HW Driver)
- 2012-12–2014-07 **SIP Apps (Windows/Android/iOS)**, *Consulting, Software Development*.
Development support and development of video telephony apps for Windows, iOS and Android (Objective-C, C#, RTP, Siplace, Java, Audio-Video Streaming)
- 2010-12–2014-06 **SIP Gateway**, *Software Development, Consulting*.
Gateway system from a proprietary house communication bus to SIP telephony with video transmission (SQLite, ARM, i.MX27, 32-Bit Microcontroller, AVR, ARM Cortex, C, 8bit Microcontroller, Embedded Linux, Linux, Real-time Operating System, Buildroot, WLAN, Git, Audio-Video Streaming, SIP, RTP)
- 2012-11–2013-06 **TLS Hagen**, *Software Developer*.
Sub-components for dynamic traffic control systems on German highways (C++, Embedded Linux)
- 2011-01–2011-11 **CHTS**, *Software Developer*.
Development of a user interface with C++ and Qt under Embedded Linux (Embedded Linux, Qt, SQLite, Low-Level HW Driver, Linux Driver Programming, C++)
- 2008-04–2010-05 **DatraSmart**, *Software Developer*.
Development of a data acquisition system for rental machines (AVR, Atmel, Flash Memory, SPI, Radio Modem)
- 2006-08–2007-09 **BDRM**, *Software Developer for Buhl Data Service GmbH*.
(DRM, Delphi, C#)
- 2006-08–2007-09 **WISO Mein Geld**, *Software Developer for Buhl Data Service GmbH*.
(C#, Information Security)

Education

- 2007–2014 **Diplom-Informatiker (Master's equivalent)**, *University of Siegen*.
Computer Science Studies with Minor in Electrical Engineering

Skills

- Programming Languages C, C#, Rust, TypeScript, C++, Delphi, Python, Go, VHDL, Kotlin, Visual Basic .NET

Databases	MongoDB, InfluxDB, MariaDB, SQLite, PostgresDB
Hardware	ARM, STM32, ESP
OS	Linux, Embedded Linux, Yocto, Buildroot, FreeRTOS
Data	Distributed Systems, Client/Server, SIP, Wireguard, Streaming
Communication	
Products,	Kubernetes, Grafana, Prometheus
Standards	

Languages

German	native
English	fluent