

Katharina Fey

SOFTWARE RESEARCHER · SYSTEMS ARCHITECT

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Summary

I have over a decade of professional experience in system administration, system architecture, and software development: 5+ years of experience in *Java* (the *OpenJVM* in particular), 3+ years of *C/C++* experience, 5+ years of *Rust* experience, and 4+ years of experience with *Nix(OS)*. I also have some experience designing PCBs (using *KiCAD*) and bringing a product to market (working with assembly houses, parts acquisition, etc).

I am an active contributor to various open source projects, and maintain some open source libraries myself. I used to contribute to the Rust project as part of the *CLI working group* and *community team*. I am still involved in maintaining and developing Rust crates, and trying to improve the general ecosystem. I was active on the *NixOS RFC Steering Committee* from 2020 to 2022. Currently I'm involved with the *NixOS documentation team*.

My main research project is *Irdest*, a delay tolerant, decentralised routing framework, and associated user applications, and I have mentored the Google Summer of Code twice as part of Freifunk. My work on *Irdest* and associated network projects is being funded by a European NLnet research grant.

I am comfortable working with large (50kloc+) code bases, learn new systems quickly and strive to solve problems not just efficiently, but maintainably as well.

I read research papers for fun. In my free time I enjoy making electronic music, writing stories, and taking care of plants. I speak German and English fluently, and am conversational in French.

Experience

Determinate Systems Inc

New York, USA (remote)

SENIOR SOFTWARE ENGINEER

Sep 2022 - Feb 2023

- Writing NixOS documentation specific to explaining the new flakes system
- Testing and development of a Rust Nix installer

Ockam Inc

San Francisco, USA (remote)

SENIOR SOFTWARE ARCHITECT

Feb 2021 - Aug 2022

- Building e2e encrypted and mutually authenticated communication protocols and libraries for resource constrained IoT devices.
- Large scale platform architecture and API design in the Rust language.
- Building actor based cryptographic and messaging capability protocols.

Freelance Consultant

Berlin, Germany

SOFTWARE RESEARCHER

Jul 2019 - current

- *Irdest* NLnet grant to create a delay tolerant, distributed packet routing layer.
- Building a network-transparent actor framework at ockam.io for low power IoT devices.
- Lead developer & researcher for qaul.net (now *Irdest*), a delay tolerant, decentralised mesh routing application and toolkit.
- System architect consultant for lacewing's Kubernetes infrastructure.
- Development and maintenance for prisma of the Rust migration generator library *barrel*.
- Preparing and teaching workshop for nyantec on the Nix system expression language, and its ecosystem.

Asquera GmbH

Berlin, Germany

SOFTWARE CONSULTANT

Mar 2018 - Jun 2019

- End-of-life maintenance of a large in-production Ruby on Rails application and associated infrastructure.
- Preparing and teaching multi-day workshops for the Rust systems programming language.
- Custom Rust tooling (*svd2rust*) for embedded development and development of a board support library.
- Application server to manage embedded sensor boards and exposes them via a protobuf API.
- High-performance GraphQL parser backend and associated type parsers for prisma.io.
- Representing the company and Rust community at conferences through talks on FFI and async development.

Fastforward Imaging GmbH

Berlin, Germany

PRINCIPAL SOFTWARE ENGINEER & SYSTEMS ARCHITECT

2015 - 2017

- Development and maintenance of automated, industrial photography studios.
- Technical roadmapping and managing a team of four developers to develop and deploy new features.
- Working with clients to integrate feedback on the platform into the mainline product.

Botspot GmbH

Berlin, Germany

FREELANCE SOFTWARE ENGINEER AND ARCHITECT

2016

- Design and implementation of low-latency userspace driver for proprietary photography devices in 3D scanning application.
- Coordinating architectural decisions to ensure reliability and maintainability of future software stack.

Google Summer of Code

Berlin, Germany

SOFTWARE DEVELOPER

Summer 2016

- Participating in the annual Google Summer of Code program as part of Freifunk Berlin.
- Designing and implementing a cryptography module for a mesh-wifi network application called "qaul.net".

Motioncoding

Freiburg, Germany

FREELANCE SOFTWARE DEVELOPER

2013

- Working on front-end Android applications in Java for the NovaQ Android-TV-Stick.
- Participating in UI design workflow for the NovaQ TV interface.

Albert-Ludwigs-University (Institute of Psychology)

Freiburg, Germany

NETWORK SYSTEMS ADMINISTRATOR

2011 – 2013

- Maintenance and expansion of the IT-Infrastructure.
- Technical end-user support for researchers of the clinical psychological institute.