

# Katharina Fey

SOFTWARE ENGINEER · SYSTEMS ARCHITECT

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*Personal motto: [xkcd.com/1495](https://xkcd.com/1495)*

## Summary

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I have worked in the tech industry for over a decade and have gathered a variety of experience across a wide field of different systems, languages, and industries, including 8+ years with **Rust**, 5+ years with **NixOS**, and 5+ years of **C/C++**. I have also worked, professionally or personally with **Java** (the **OpenJVM** in particular), **Raku** (Perl 6), **Ruby**, **Python**, and **Zig**. I also have some experience designing digital circuits and PCBs (using **KiCAD**) and bringing a product to market (working with assembly houses, parts acquisition, setting up hardware testing infrastructure, etc).

I have a background in active open source project contributions, including the Rust **Community Team** and the **CLI Working Group** from 2017 – 2020, as well as serving on the NixOS **RFC Steering committee** from 2020 – 2023.

I work on a distributed networking research project called **Irdest**, a delay tolerant, decentralised userspace routing framework and I have mentored the Google Summer of Code twice as part of Freifunk.

I am comfortable working with large code bases and distributed teams, learn new systems quickly and strive to solve problems efficiently and maintainably. The goal is a simple, elegant, and concise solution to any problem.

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

## Experience

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### Fly.io

SENIOR SOFTWARE / INFRAOPS ENGINEER

*Full remote*

*December 2023 – Current*

- Develop, tune, and maintain the distributed gossip sqlite database **corrosion**.
- Coordinate across different teams to document existing corrosion cluster behaviour and processes.
- Maintain Fly.io infrastructure and handle outages and incidents around the corrosion database cluster.

### Determinate Systems Inc.

SENIOR SOFTWARE ENGINEER

*Full remote*

*October 2022 – February 2023*

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

### Ockam Inc.

SENIOR SOFTWARE ARCHITECT

*Full remote*

*Feb 2021 – August 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

SOFTWARE RESEARCHER

*Berlin, Germany*

*Jul 2019 – current*

- Teaching NixOS principles and tooling at Unieke Oy and Mercury Inc for teams looking to solve virtualisation and system integration challenges.
- Irdest NLnet grant to create a delay tolerant, distributed packet routing layer.
- Mentor Google Summer of Code and Outreachy programs as part of the Irdest research project.
- Building a network-transparent actor framework at ockam.io for low power IoT devices.
- System architect for lacewing's Kubernetes cloud 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**

SOFTWARE CONSULTANT

*Berlin, Germany*

*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 associated protobuf client API.
- High-performance GraphQL parser and query optimiser backend for *prisma.io*.
- Representing the company and Rust community at conferences through talks on FFI and async development.

## **Fastforward Imaging GmbH**

PRINCIPAL SOFTWARE ENGINEER & SYSTEMS ARCHITECT

*Berlin, Germany*

*2015 – 2017*

- Development and maintenance of automated, industrial photography studios.
- Technical roadmapping and managing a small team to create and deploy new features in on-site production settings.
- Working with clients to integrate feedback on the platform into the mainline product.

## **Botspot GmbH**

FREELANCE SOFTWARE ENGINEER AND ARCHITECT

*Berlin, Germany*

*2016*

- Implementation of low-latency userspace driver for embedded high-performance Sony cameras in 3D scanning application.
- Coordinating architectural decisions to ensure reliability and maintainability of future software stack.

## **Google Summer of Code**

SOFTWARE DEVELOPER

*Berlin, Germany*

*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**

FREELANCE SOFTWARE DEVELOPER

*Freiburg, Germany*

*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)**

NETWORK SYSTEMS ADMINISTRATOR

*Freiburg, Germany*

*2011 – 2013*

- Maintenance and expansion of the Windows XP (later 7) IT-Infrastructure.
- Technical end-user support for researchers of the clinical institute for psychology.