

Niklas Korz

SOFTWARE DEVELOPER

Mannheim, Germany

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Skills

Natural languages	German (native), English (proficient), Spanish (intermediate), French (beginner)
Programming languages	Go, Rust, Python, Swift, Kotlin, Java, C, C++, JavaScript (ECMAScript), TypeScript
Other languages	HTML, CSS, Markdown, LaTeX, XML, JSON, TOML, YAML
Technologies	Git, CI/CD, Nix, Docker, Kubernetes, GraphQL, REST, Webpack, CMake, GNU Make (Makefile), PyTorch, React, Svelte, CUDA, WebGPU, WebAssembly
Databases	MongoDB, Redis, PostgreSQL, MariaDB/MySQL, NATS
Project management	GitHub, Gitlab, Gitea, JIRA, Confluence

Work Experience

Alugha GmbH

Mannheim, Germany

TECHNICAL LEAD

October 1, 2022 – today

- Development of the alugha livestreaming service
- Nix-based CI/CD for the alugha monorepo with incremental builds
- Planning of new features and projects

WORKING STUDENT

October 1, 2019 – September 30, 2022

- Responsible for the software architecture, the video player and the encoding pipeline of the alugha video platform
- DevOps and server administration

COOPERATIVE STUDENT

October 1, 2016 – September 30, 2019

- Term 1 and 2: Redevelopment of the alugha video page in React and GraphQL for server side rendering and low latency API requests
- Term 3: Development of an iOS application for using the smartphone as a microphone in a browserbased dubbing software
- Term 4: Migration of the alugha video platform from Docker Compose to a distributed server solution with Kubernetes and Object Storage
- Term 5: Distributed processing of multimedia content in a Kubernetes cluster (distributed job processing)
- For each of these topics, a report of 20 to 40 pages has been written.
- Term 6: Recording and Playback of Web-Based Livestreams with Multiple Audio Sources (Bachelor thesis)

INTERNSHIP

April 1, 2016 – September 30, 2016

- Development of the alugha Android and iOS applications
- Development of the new alugha video player in React and JavaScript (ES2015)

WORKING STUDENT

May 1, 2014 – March 30, 2016

- Web development with Angular.js, Polymer, CoffeeScript, HTML and SCSS
- Serverside API development with Go and Python

Dark Side Design GmbH

INTERNSHIP

Mannheim, Germany

January 19, 2015 – January 30, 2015

- Two weeks school-mandated internship in 12th grade
- Web development with PHP, HTML and CSS

Education

Heidelberg University

MASTER OF SCIENCE (DATA AND COMPUTER SCIENCE)

Heidelberg, Germany

October 1, 2019 – July 4, 2022

120 ECTS

GPA: 1.1 (corresponds to 3.9 in the United States)

Thesis: Projectional Editing of Internal Domain-Specific Languages

Notable projects:

- [Linon](#): A sandbox application for interactive exploration of nonlinear ray casting, using Rust and WebGPU
- [LoopFusion](#): A header-only C++ 17 library for merging loops
- [DieSL](#): A Nim-based domain specific language for data manipulation in SQL-based databases
- [Speech to Text in Joey NMT](#): An adaptation of the Joey NMT neural machine translation toolkit for use as a speech to text library
- Language Simplification: German language simplification through Seq2Seq, based on paraphrases mined from Wikipedia

Baden-Württemberg Cooperative State University

BACHELOR OF SCIENCE (COMPUTER SCIENCE)

Mannheim, Germany

October 1, 2016 – September 30, 2019

210 ECTS

GPA: 1.6 (corresponds to 3.4 in the United States)

Thesis: Recording and Playback of Web-Based Livestreams with Multiple Audio Sources

Notable projects:

- [nkchat](#): Web-based group chat application with TypeScript, React and GraphQL
- [nklang](#): Parser and interpreter for a custom programming language in Go
- [EVE](#): Chatbot with Machine Learning (Tensorflow) and Natural Language Processing, trained on a chat corpus of our own WhatsApp chats
- [audio3d](#): Web application for creating 3D games with focus on acoustic feedback, including a report of 70 pages
- DHBW Inc: Economic simulation in Java with JavaFX where you manage a university

Leininger-Gymnasium

ALLGEMEINE HOCHSCHULREIFE (A LEVELS / BACCALAUREATE)

Grünstadt, Germany

August 20, 2007 – March 11, 2016

GPA: 2.0 (corresponds to 3.0 in the United States)

Advanced courses: Mathematics, Physics, English

Oral exams: Computer Science, History

In parallel to computer science lessons:

- Development of an Android app for the substitution plan of my school ([article](#))
- Reimplementation of the “Kara” software used in computer science lessons using Python 3 ([article](#))

Publications

- [1] N. Korz and A. Andrzejak, “Virtual Domain Specific Languages via Embedded Projectional Editing,” in *Proceedings of the 22nd ACM SIGPLAN International Conference on Generative Programming: Concepts and Experiences (GPCE 2023)*, Association for Computing Machinery, 2023, pp. 122–137. doi: [10.1145/3624007.3624059](https://doi.org/10.1145/3624007.3624059).

Talks and Workshops

“Nix for Monorepos” on March 18, 2024 at the Nix Your Bugs & Rust Your Engines meetup in Mannheim, Germany.

Recording: <https://alugha.com/videos/b08fd3e0-e706-11ee-a558-5bc1d553b502>

“Sind wir schon Wayland: Nvidia Edition” on June 1, 2024 at the 22nd Gulaschprogrammiernacht in Karlsruhe, Germany.

Recording: <https://media.ccc.de/v/gpn22-265-sind-wir-schon-wayland-nvidia-edition>

“Interactive Exploration of Nonlinear Ray Casting with Rust and wgpu” on June 21, 2024 at the RustFest conference in Zurich, Switzerland. Slides: <https://dl.korz.dev/rustfest2024.pdf>

“Runtime Scripting for Rust Applications” on October 10, 2024 at the EuroRust conference in Vienna, Austria. Recording: <https://www.youtube.com/watch?v=M8dpH3rO-2M>

“Build a Ray Tracer with Rust and wgpu” workshop on November 9, 2024 at the RustLab conference in Florence, Italy.

Slides: <https://dl.korz.dev/rustlab2024.pdf>