KAI KÜHNE

Software engineer with 20+ years of experience building the infrastructure behind creative software — platforms, pipelines, and tooling at companies like SoundCloud and Native Instruments, and independently for game engines and audio production. I go deep technically and I communicate clearly; teams I've worked with consistently value both.

Berlin, Germany
mail@kaikuehne.net
kaikuehne.net
kai-kuehne

How I Work

- Makes cross-functional work productive — comfortable at the table with audio engineers, designers, QA, and product, not just other backend engineers
- Writes documentation people actually reach for: runbooks, system walkthroughs, onboarding guides
- Gets up to speed fast in unfamiliar systems and brings others along while doing it

Skills

Languages
Go • Python • C • C++ • C# • TypeScript • JavaScript

Infrastructure
Kubernetes • Terraform • AWS/GCP • CI/CD • Kafka

Domains
Distributed systems • Audio/game tech • FMOD • Godot • Web APIs

Education

Master of Science • Computer Science
2014–2017, Beuth University of Applied Sciences

Bachelor of Science • Computer Science
2008–2013, Beuth University of Applied Sciences

Professional Experience

Independent Software Engineer — 2023–Present

- **Game audio tooling:** Built a high-performance FMOD-Godot plugin in C++ via GDExtension, running audio on its own clock — existing solutions tie audio updates to the render loop, which is insufficient for a rhythm game. Developed an FMOD export plugin that generates levels directly from audio timing data.
- **Hardware integration:** Built Chordel, a synthesizer and training tool implementing the Ableton Push 2 USB display protocol from scratch for frame-accurate rendering alongside real-time MIDI handling.
- **Open source and game dev:** Built a Spine2D skeletal animation renderer for XNA/MonoGame/FNA. Shipped a playable demo of ULTRAMASSIVE (sci-fi deckbuilder) with custom engine architecture. Consulting for audio professionals on workflow tooling.

Tech: C, C++, C#, GDScript, GLSL, SDL, FMOD, Godot.

Sabbatical — 2022–2023

Software Engineer — SoundCloud Ltd. — 2020–2022

- **Operational tooling:** Reduced manual operational burden by automating album metadata extraction and deal enforcement from DDEX files, improving mapping accuracy and replacing error-prone manual corrections.
- **Content identification:** Maintained and extended a tiered fingerprinting pipeline routing user-uploaded tracks through progressively more expensive identification services, optimizing for cost while handling complex edge cases in artist and rights attribution.
- **Ingestion services:** Built and maintained ingestion services for DSP-delivered content, including artist and rights mapping for non-UGC catalogue.
- **Runbooks and on-call:** Wrote operational runbooks and tooling used company-wide by on-call engineers, covering failure modes, resolution steps, and escalation paths.
- **Remote onboarding:** Led onboarding for the team in an all-remote setup, coordinating system walkthroughs and cross-team introductions.

Tech: Scala, Go, Kubernetes, Airflow, Hadoop, Spark, AWS, GCP.

Software Developer — Native Instruments GmbH — 2018–2019

- **Core backend platform:** Owned authentication, product activation, product databases, and software delivery services used by the website team, Native Access desktop client, and internal stakeholders.
- **CI/CD introduction:** Introduced continuous integration and deployment using GitHub workflows, replacing a process with no automation.
- **Cross-functional collaboration:** Worked in a team spanning backend, C++ platform development, design, QA, and product management, serving as the backend counterpart to the Native Access client team.

Tech: Go, Python, gRPC, Tornado, Kubernetes, Terraform, AWS.

Professional Experience

Full-Stack Developer — CosmoCode GmbH 2014–2017

Part-time, alongside MSc studies.

- Built Python/Django web applications across diverse domains, including a weather information platform for pilots, a restaurant management system, and museum audio guide software with hardware integration.
- Worked across the full stack, delivering backend features and frontend work in HTML, CSS, and JavaScript, with React used where it fit.

Tech: Python, Django, JavaScript, React, HTML, CSS.

Backend Developer — Bytepark GmbH 2013–2014

- **Web agency backend:** Backend development in PHP and Python across diverse client projects.
- **Tooling modernization:** Introduced Vagrant, Jenkins CI/CD, and Docker to the company during Docker's early adoption phase.

Tech: PHP, Python, Vagrant, Jenkins, Docker.

Earlier Career 2003–2013

- **Working Student — Quintra GmbH** (2008–2013): IT consulting and services, working as a full team member alongside BSc studies.
- **Apprenticeship — MDE GmbH** (2003–2006): Fachinformatiker Anwendungsentwicklung. Built tooling for medical studies in collaboration with Charité Berlin; systems integration across enterprise environments.

Selected Projects

Chordel 2024–Present

github.com/kai-kuehne/chordel

Synthesizer and training tool for Ableton Push 2, written in C. Implements the Push 2 USB display protocol from scratch for frame-accurate rendering alongside real-time MIDI handling. Includes an interactive training mode with hot-reloading.

Tech: C, SDL, MIDI.

Rhythm and Goose 2025–Present

rhythmandgoose.com

Rhythm game built with a composer/audio engineer partner, approaching demo and Steam release. Built a high-performance FMOD-Godot plugin in C++ via GDExtension running on its own clock — existing solutions tie audio updates to the render loop, which is insufficient for a rhythm game. Developed an FMOD export plugin that generates levels directly from audio timing data, and a complete dev pipeline: cross-platform toolchain management, Blender-to-Godot asset conversion, and Godot editor plugins for 3D asset workflows.

Tech: C++, GDExtension, GDScript, FMOD, Godot, Blender.