

# WILHELM KRÄTZIG

## SOFTWARE DEVELOPER

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Backend DSP Engineer specializing in high-performance audio processing, spatial audio, and machine learning. Experienced in developing cutting-edge DSP algorithms and optimizing real-time processing pipelines.

### EXPERIENCE

2023 – 2025

#### Backend Developer

Dear Reality

R&D of DSP algorithms for multiple General-purpose platforms

- ▶ Researched and developed DSP and Spatial Audio algorithms from scientific papers to low-level C++ solutions.
- ▶ Improved the performance of a high-performance convolution engine by up to 80%.
- ▶ Designed proprietary APIs for real-time audio processing.
- ▶ Ported codebase to Linux.
- ▶ Conducted research on a neural network for denoising and dereverberation of speech; developed a cloud-based prototype.
- ▶ Designed, assembled and configured on-premise build servers for integration with Azure services and remote accessibility.

2021 – 2023




#### Researcher, QA Engineer

Dear Reality

Prototyping, Support, Quality Assurance

- ▶ Researched and developed DSP algorithms in Matlab and Python.
- ▶ Enhanced and optimized a binaural room impulse response generation engine, improving quality and performance.
- ▶ Developed a GUI tool to create binaural room impulse responses.
- ▶ Handled quality assurance and support requests.

## EDUCATION

- 2020 – 2023      **Master of Science**      Hochschule Düsseldorf   
Electrical Engineering and Information Technology
- ▶ Master Thesis: Reconstruction of distorted speech signals using Deep Learning and Convolutional Neural Networks. Cooperation with Dear Reality.
- 2015 – 2020      **Bachelor of Engineering**      Hochschule Düsseldorf   
Audio and Video
- ▶ Bachelor Thesis: Concepts for resource optimisation of a binaural 3D room simulation in a live monitoring application. Cooperation with KLANG Technologies 

## SKILLS & TOOLS

### Programming languages

C++17, Python, C99, Matlab, VHDL

### Dev Tools

Git, conan, CMake, Docker, Azure Devops, Azure ML

### Frameworks

PyTorch, Numpy, Scipy, GTest, GoogleBenchmark

### DSP and Audio

Pure Data, Reaper, Nuendo, JUCE

### Management Frameworks

Kanban, Scrum

### Other

Test-Driven Development, Linux, Neovim, JetBrains IDEs, QEMU

## LANGUAGES

### German

native

### English

fluent

## OTHER ACTIVITY

### Private software projects

Developed several smaller private software projects related to retro hardware controlling, DSP algorithms, and Cloud servers.

### Music

Trombone-playing for two bands engaged in Düsseldorf and the Rhineland.