WILHELM KRÄTZIG
SOFTWARE DEVELOPER

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WilhelmKraetzig1996
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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 – current	**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 for two bands engaged in Düsseldorf and the Rhineland.