

Stefan A. Wirler

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• [Stefan-Wirler-2](https://www.researchgate.net/profile/Stefan-Wirler-2)

Research Interests

Spatial Audio Processing, Microphone Array Processing, Beamforming, Audio Signal Processing, Machine Learning, Virtual Acoustics Perception

Education

Aalto University

Espoo, Finland

D.Sc.(Tech) / PhD Acoustics and Audio Signal Processing

2020–present

Department of Information and Communications Engineering, Acoustics Lab

Supervisor: Prof. Ville Pulkki

Friedrich-Alexander-University (FAU)

Erlangen, Germany

M.Sc. Electrical Engineering, Grade: 1.5 – "Very Good" – 90/100

2016–2019

Thesis: *Impact of Diffuse and Disturbed Reflections on Room Geometry Inference Algorithms*

International Audio Laboratories Erlangen - Joint Institution of Fraunhofer IIS and FAU

Regensburg University of Applied Science

Regensburg, Germany

B.Eng. Electrical Engineering, Grade: 1.8 - "Good" – 84/100

2012–2016

Thesis: *Multichannel Room Impulse Response Measurement for the Determination of Room Acoustic Parameters*

Electroacoustics Lab, Regensburg University of Applied Science

Experience

AAC Technologies

Turku, Finland

Project Employee

2021–2023

Microphone array design, implementation of beamforming algorithms and development of parametric time-frequency domain spatial post-filtering algorithms for hand-held devices (MATLAB)

Aalto University

Espoo, Finland

Research Assistant

2020

Implementation of a real-time binaural rendering system for the evaluation of virtual acoustic perception (Max/MSP)

Fraunhofer IIS

Erlangen, Germany

Graduate Research Assistant

2019

Implementation of FDN reverberation algorithms for the evaluation and comparison to real-world recordings (MATLAB)

FAU

Erlangen, Germany

Research Internship

2018

Implementation and extension of an independent vector analysis algorithm to support block-online processing (Python)

Others

Aalto University

Espoo, Finland

Teaching Assistant, Acoustics and Physics of Sound

2021–present

Aalto University

Espoo, Finland

Thesis Advisor

Master Thesis

“Real-time Implementation and Evaluation of Acoustic Occlusion in Virtual Reality”, Andrés Ortiz Pachón, 2021

“Evaluation of Pair-Wise Similarity Spotforming Algorithm on Real Omnidirectional Signals and Ambisonic Signals with Search for Improvements on the Algorithm”, Antoine Souchaud, 2024

Bachelor Thesis

“MEMS Microphones and their use in Array Processing Applications”, Jonatan Kaján, 2022

Computer skills

■■■■■	MATLAB	■■■■■	Max/MSP
■■■■■	Python	■■■■■	Assembler
■■■■■	C	■■■■■	VHDL
■■■■■	C++	■■■■■	LabVIEW

Publications

[1] **Wirler, Stefan**, Nils Meyer-Kahlen, and Sebastian J Schlecht. **Towards transfer-plausibility for evaluating mixed reality audio in complex scenes**. In *Audio Engineering Society Conference: 2020 AES International Conference on Audio for Virtual and Augmented Reality*. Audio Engineering Society, 2020.

[2] **Wirler, Stefan**, Sebastian J Schlecht, and Ville Pulkki. **Machine learning based auralization of rigid sphere scattering**. In *2021 Immersive and 3D Audio: from Architecture to Automotive (I3DA)*. IEEE, 2021.

[3] **Wirler, Stefan** and Ville Pulkki. **Spatial post-filter estimation based on low-order beam-formers**. In *International Congress on Acoustics*. Acoustical Society of Korea (ASK), 2022.

[4] **Wirler, Stefan**, Vasileios Bountourakis, and Ville Pulkki. **Space-domain cross-pattern coherence post-filter for speech enhancement with linear microphone arrays**. In *Audio Engineering Society Convention 154*. Audio Engineering Society, 2023.

[5] **Wirler, Stefan**, Nils Meyer-Kahlen, and Ville Pulkki. **Enhancing Spatial Post-Filters through Non-Linear Combinations**. In *Audio Engineering Society Convention 157*. Audio Engineering Society, 2024.

[6] **Wirler Stefan** and Ville Pulkki. **Spatially Selective Sound Capture Based on Aggregated Pair-Wise Similarity Measures**. *Journal of Audio Engineering Societ*, 2025. **[Accepted for Publication]**.

- [7] **Wirler, Stefan**, Nils Meyer-Kahlen, and Ville Pulkki. **Synthesizing a Virtual Height Channel from Planar Microphone Arrays**. In *EUSIPCO*, 2025. **[Accepted for Publication]**.
- [8] Nils Meyer-Kahlen, Daniel Rudrich, Manuel Brandner, **Wirler, Stefan**, Simon Windtner, and Matthias Frank. **Diy modifications for acoustically transparent headphones**. In *Audio Engineering Society Convention 148*. Audio Engineering Society, 2020.