Stefan Wirler

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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) 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*
Electrocacoustics 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 Assistent *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)

National Instruments Germany GmbH **Munich, Germany**
Application Engineering Intern *2014–2015*

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 beamformers**. 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] 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.