KEVIN WILKINGHOFF

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I am a postdoctoral researcher at Aalborg University with the Pioneer Centre for AI and an active member of the DCASE community. My research focuses on anomaly and out-of-distribution detection for audio data, with applications such as acoustic machine condition monitoring, keyword spotting and sound event detection.

EDUCATION

Ph.D. (Dr.rer.nat.) in Computer Science (summa cum laude), University of Bonn, Germany   10/2022-09/2024
Thesis: *Audio Embeddings for Semi-Supervised Anomalous Sound Detection*

M.Sc. in Computer Science (with distinction), University of Bonn, Germany   10/2014-05/2017
Thesis: *Neural Networks in Speaker Identification*

B.Sc. in Mathematics, University of Münster, Germany   10/2010-02/2014
Thesis: *Homogenisierung nichtlinearer elliptischer Differentialgleichungen*

EXPERIENCE

Aalborg University with Pioneer Centre for AI, Denmark — Postdoctoral Researcher   02/2025-present
- Open reasoning with LLMs about spatial audio (in progress)
- Domain generalization for anomalous sound detection (1 paper, 1 preprint)

Mitsubishi Electric Research Laboratories, Cambridge, MA, USA — Visiting Research Scientist   07/2024-01/2025
- Anomaly score normalization for domain generalization (1 paper, 1 preprint, 1 pending patent)
- Class balancing for audio tagging (1 paper)
- Weakly supervised source separation for explainable anomalous sound detection

Fraunhofer FKIE, Wachtberg, Germany — Research Associate   06/2017-07/2024
- Self-supervised learning for semi-supervised anomalous sound detection (6 papers)
- Domain adaptation and generalization for anomalous sound detection (2 papers)
- Threshold estimation and performance metrics for anomalous sound detection (2 papers)
- Open-set few-shot keyword spotting (3 papers)
- Open-set classification of speakers, sound events and acoustic scenes (4 papers)
- Monitoring and analyzing military speech signals, e.g. radio communications (8 papers)
- Bio-acoustic event detection (1 paper)
- Ensembling for audio tagging (1 paper)

— Student Research Assistant   10/2016-06/2017
- Speaker identification in telephone speech signals (3 papers)

University of Bonn, Germany — Tutor (7 classes, each 2-4 hours per week)   10/2014-09/2016

— Student Research Assistant   11/2013-03/2014
- Refactoring of a software package for parallelized k-nearest neighbor search

German Aerospace Center, Cologne, Germany —Student Research Assistant   01/2014-12/2014
- Writing scripts for automatically evaluating measurement data and ensuring clean coding

University of Münster, Germany — Tutor (2 classes, each 2-4 hours per week)   10/2012-09/2013

HONORS AND AWARDS

IEEE ICASSP 2023 Outstanding Reviewer Recognition (top 4%)	06/2023
DCASE 2021 Best Paper Award	11/2021
DCASE 2021 Challenge Judges' Award - Task 2 (rank 3/27)	11/2021
Kölner VDI Förderpreis 2018 (third prize, 500 €)	01/2019
AFCEA Bonn Studienpreis 2018 (first prize, 6,000 €)	08/2018

COMMUNITY SERVICE AND OTHER ROLES

Supervisor for graduate students (4 Master's theses, 5 lab projects, 2 seminar talks)
Co-Director for a P1 Program on *Multimodal Anomaly Detection* funded by Pioneer Centre for AI, Denmark (50,000 DKK)
Technical Support for DCASE Community
Industry Liaison Chair (Europe) for DCASE2024 Workshop
Website and Social Media Chair for DCASE2022 Workshop
Participant in academic machine learning challenges (9 reports)
Reviewer for various conferences and journals (ICASSP, Interspeech, WASPAA, IJCNN, EUSIPCO, DCASE, TASLP, SPL, ...)