Prof. Dr. Simon Doclo

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PROFESSIONAL EXPERIENCE

since Dec 2010	**Fraunhofer IDMT, Branch Hearing, Speech and Audio Technology** Scientific leader "Signal Processing and Personalized Hearing Systems"
since Sep 2009	**Dept. of Medical Physics and Acoustics, University of Oldenburg, Germany** Full Professor (Head of Signal Processing Group)
Dec 2007-Aug 2009	**NXP Semiconductors, Leuven, Belgium** Principal Scientist (Sound & Acoustics Group)
Jun 2003-Nov 2007	**Dept. of Electrical Engineering, KU Leuven, Belgium** Postdoctoral Fellow (with Prof. Dr. Marc Moonen)
Jan 2005-Dec 2005	**Dept. of Electrical Engineering, McMaster University, Canada** Visiting Postdoctoral Fellow (with Prof. Dr. Simon Haykin)
Aug 1997-May 2003	**Dept. of Electrical Engineering, KU Leuven, Belgium** Research Assistant (with Prof. Dr. Marc Moonen)

ACADEMIC DEGREES

May 2003	PhD in Applied Sciences, KU Leuven, Belgium "Multi-microphone noise reduction and dereverberation techniques for speech applications"
Jul 1997	MSc in Electrical Engineering, KU Leuven, Belgium "Enhancement of speech intelligibility in hearing aids by adaptive noise suppression in real time"

RESEARCH INTERESTS

Signal processing for acoustical and biomedical applications

Microphone array processing for signal enhancement, sound localisation, echo and feedback suppression

Machine learning for acoustical signal processing

Distributed and cooperative processing for acoustic sensor networks

Computational auditory scene analysis, auditory attention decoding

Application to hearing aids, cochlear implants and assistive listening devices

AWARDS

Best Paper Award, VDE Information Technology Society, 2019 (with Ina Kodrasi)

PhD Supervision Award, School of Medicine and Health Sciences, University of Oldenburg, 2019

Best Paper Award (1st Prize), International Conference on Digital Audio Effects, 2017 (with Kai Siedenburg)

Best Paper Award, IEEE Signal Processing Society, 2008 (with Jingdong Chen, Jacob Benesty, Arden Huang)

Best Paper Award, EURASIP Signal Processing, 2003 (with Marc Moonen)

Best Student Paper Award, International Workshop on Acoustic Echo and Noise Control, 2001

ACADEMIC FUNCTIONS

Director, Dept. of Medical Physics and Acoustics, University of Oldenburg (2019-2023)

Chair of the Board of Examiners, Engineering Physics, University of Oldenburg (since 2018)

Deputy Member of Doctoral Board, School of Medicine and Health Sciences (since 2014)

Member of Extended Management Board in Cluster of Excellence Hearing4all (since 2013)

Member of Joint Committee Engineering Physics, University of Oldenburg (since 2011)

OFFICE IN PROFESSIONAL COMMITTEES

IEEE Signal Processing Society, Audio and Acoustic Signal Processing Technical Committee (2008-2013, 2017-2022)

EURASIP, Acoustic, Speech and Music Signal Processing Technical Area Committee (2016-2021)

EAA, Audio Signal Processing Technical Committee (since 2016)

ITG, Fachausschuss AT3 Sprachkommunikation (since 2014)

ITG, Fachgruppe „Signalverarbeitung und maschinelles Lernen“ (since 2009)

International Workshop on Acoustic Signal Enhancement, Technical and Steering Committee (since 2013)

IEEE Benelux Signal Processing Chapter, Technical Committee (2002-2007)

IEEE Benelux Signal Processing Chapter, Secretary (1997-2002)

EDITORIAL ACTIVITIES

Senior Area Editor, IEEE/ACM Transactions on Audio, Speech and Language Processing (since 2021)

Associate Editor, IEEE/ACM Transactions on Audio, Speech and Language Processing (2015-2019)

Associate Editor, EURASIP Journal on Advances in Signal Processing (2014-2019)

Guest Editor, *IEEE Signal Processing Magazine*, special issue on “Signal Processing Techniques for Assisted Listening” (2015), *Elsevier Signal Processing*, special issue on “Wireless acoustic sensor networks and ad hoc microphone arrays” (2014), *EURASIP Journal on Advances in Signal Processing*, special issues on “Microphone Array Speech Processing” (2009), “Advances in Multimicrophone Speech Processing” (2006), “DSP in Hearing Aids and Cochlear Implants” (2005)

CONFERENCE ORGANISATION

Technical Program Chair, International Workshop on Acoustic Signal Enhancement, 2022

Chair, ITG Conference on Speech Communication, 2018

Area Chair, Audio and Acoustic Signal Processing, European Signal Processing Conference, 2018

Finance Chair, AES Int. Conference on Dereverberation and Reverberation of Audio, Music, and Speech, 2016

Area Chair, Audio and Acoustic Signal Processing, European Signal Processing Conference, 2015

Technical Program Chair, IEEE Workshop on Applications of Signal Processing to Audio and Acoustics, 2013

Special session organisation: Forum Acusticum 2023, ICASSP 2020, ICA 2019, EUSIPCO 2017, EFAS 2015, ICASSP 2015, EUSIPCO 2013, EUSIPCO 2012.

FELLOWSHIPS - GRANTS

Research Foundation – Flanders, Postdoctoral Fellowship (6 years, 2004-2010)

European Union, Marie-Curie Outgoing International Fellowship (declined in order to accept Postdoctoral Fellowship of Research Foundation – Flanders)

KU Leuven Research Fund, Postdoctoral Fellowship (1 year, 2003-2004)

RESEARCH PROJECTS

“Easy Listening - Optimizing the consequences of effortful listening in occupational settings”, PI, Doctoral Network, European Union (2024-2027)

“Computational Auditory Scene Analysis algorithms for improving speech communication in complex acoustic environments”, project in Collaborative Research Centre "Hearing acoustics: Perceptual principles, Algorithms and Applications", PI, German Research Foundation (2018-2026)

“MIMO acoustic earpiece for combined equalization, feedback cancellation and noise reduction”, project in Collaborative Research Centre "Hearing acoustics: Perceptual principles, Algorithms and Applications", PI, German Research Foundation (2018-2026)

Cluster of Excellence “Hearing4all - Models, technology and solutions for diagnostics, restoration and support of hearing”, PI, German Research Foundation (2012-2025)

“Deep-learning-based speech enhancement for hearing devices”, in cooperation with Tokyo Metropolitan University (Japan), PI, German Academic Exchange Service (2024-2025)

“Service-Oriented, Ubiquitous, Network-Driven Sound (SOUNDS)”, PI, European Training Network, European Union (2021-2024)

“Test, Predict, and Improve Musical Scene Perception of Hearing-Impaired Listeners (TIMPANI)”, Individual Fellowship, European Union (2018-2020)

“Active sound field control for sound reproduction in open ear canals”, project in Research Unit “Individualized Hearing Acoustics”, PI, German Research Foundation (2012-2018)

“Acoustic scene aware speech enhancement for binaural hearing aids”, Joint Lower Saxony-Israel research project, in cooperation with Bar-Ilan University, PI, VolkswagenStiftung (2015-2018)

“Algorithms and objective measures for speech dereverberation”, in cooperation with Institut National de la Recherche Scientifique (Canada), PI, German Academic Exchange Service (2015-2016)

“Individualized acoustic feedback cancellation for hearing aids”, in cooperation with Curtin University (Australia), PI, German Academic Exchange Service (2015-2016)

“Dereverberation and Reverberation of Audio, Music and Speech (DREAMS)”, PI, Initial Training Network, European Union (2013-2016)

“Signal Dereverberation Algorithms for Next-Generation Binaural Hearing Aids”, in cooperation with International Audio Labs Erlangen and Bar-Ilan University, PI, German-Israeli Foundation (2013-2015)

“Multi-channel signal processing for networked and spatially distributed microphones”, project in Research Unit “Individualized Hearing Acoustics”, PI, German Research Foundation (2012-2015)

“Signal processing and network design for wireless acoustic sensor networks”, in cooperation with University of Ghent, Research Foundation Flanders (2008-2011)

“Improving the perception of speech and music in cochlear implants”, in cooperation with Cochlear, Flemish Institute for Scientific and Technological Research (2006-2007)

“Performance improvement of cochlear implants by innovative speech processing algorithms”, in cooperation with Cochlear, Flemish Institute for Scientific and Technological Research (2002-2004)

“Multi-microphone signal enhancement techniques for hands-free telephony and voice-controlled systems”, in cooperation with Philips ITCL, Flemish Institute for Scientific and Technological Research (1998-2002)

PHD MENTORING AND RESEARCH SUPERVISION

1) Supervised PhD theses

Naveen Desiraju, *Low-complexity acoustic echo cancellation and model-based residual echo suppression*, Feb. 2022.

Mina Fallahi, *Optimization and evaluation of a virtual artificial head for individual dynamic spatial sound reproduction over headphones*, Sep. 2021.

Benjamin Cauchi, *Non-intrusive quality evaluation of speech processed in noisy and reverberant environments*, Aug. 2021.

Dörte Fischer, *Single-microphone multi-frame speech enhancement exploiting speech interframe correlation*, Nov. 2020.

Ali Aroudi, *Cognitive-driven speech enhancement using EEG-based auditory attention decoding for hearing aid applications*, Nov. 2020.

Nico Gößling, *Binaural beamforming algorithms and parameter estimation methods exploiting external microphones*, Oct. 2020.

Matthias Brandt, *Automatic restoration of audio signals in media archives*, May 2018.

Henning Schepker, *Robust feedback suppression algorithms for single- and multi-microphone hearing aids*, Dec. 2017.

Ante Jukić, *Sparse multi-channel linear prediction for blind speech dereverberation*, Nov. 2017.

Ina Kodrasi, *Dereverberation and noise reduction techniques based on acoustic multi-channel equalization,* Dec. 2015.

Daniel Marquardt, *Development and evaluation of psychoacoustically motivated binaural noise reduction and cue preservation techniques*, Nov. 2015.

Eugen Rasumow, *Synthetic reproduction of head-related transfer functions by using microphone arrays*, Mar. 2015.

2) Current PhD students

Klaus Brümann, *Source localization algorithms for compact and distributed microphone arrays*

Daniel Fejgin, *Exploiting external microphones for binaural DOA estimation of multiple speakers*

Henri Gode, *Parameter estimation for multi-microphone speech enhancement in multi-source scenarios*

Ulrik Kowalk, *Automatic signal enhancement with preservation of localization cues in the classroom*

Jiatong Li, *Semi-supervised/unsupervised learning for speech enhancement and source localisation*

Anselm Lohmann, *Algorithms for joint dereverberation and noise reduction in acoustic sensor networks*

Wiebke Middelberg, *Speech enhancement algorithms in acoustic sensor networks*

Kaspar Müller, *Distributed algorithms for speech communication in a car*

Mattes Ohlenbusch, *Speech communication algorithms for hearables using an in-ear microphone*

Stepan Shishkin, *Active learning for sound event classification and detection*

Ragini Sinha, *Target speaker extraction using deep neural networks*

Marvin Tammen, *Combination of model-based and learning-based approaches for speech enhancement*

Reza Varzandeh, *Neuro-informed acoustic source extraction*

3) Member of thesis committee and/or examiner of PhD thesis

University of Oldenburg, Germany (Bernd Meyer, Armand Djouguela, Tobias Rosenkranz, Stefan Fredelake, Anna Warzybok, Martin Krawczyk-Becker, Niko Moritz, Julian Grosse, Sarah Blum, Sarinah Sutojo)

RWTH Aachen, Germany (Marco Jeub, Johannes Fabry)

Ruhr-Universität Bochum, Germany (Sebastian Gergen)

University of Erlangen-Nuremberg, Germany (Stefan Wehr, Oliver Thiergart, Daniele Mirabilii)

Leibniz University Hannover, Germany (Ingo Schmädecke, Reemt Hinrichs)

Medizinische Hochschule Hannover, Germany (Tom Gajecki)

Katholieke Universiteit Leuven, Belgium (Alexander Bertrand, Kim Ngo, Bram Cornelis, Raphael Koning, Thomas Dietzen)

Vrije Universiteit Brussel, Belgium (Georgios Athanasopoulos)

Delft University of Technology, The Netherlands (Andreas Koutrouvelis, Jamal Amini)

Eindhoven University of Technology, The Netherlands (Tobias May)

University of Rennes I, France (Diego di Carlo)

Imperial College London, UK (Felicia Lim)

Bar-Ilan University, Israel (Ofer Schwartz)

Ben-Gurion University, Israel (Hanan Beit On)

Nanyang Technological University, Singapore (Shen Xiaoyi, Zhi-Wei Tan)

MSC STUDENTS

2023 Extension and Evaluation of a Semi-supervised Variational Autoencoder for Binaural Direction of Arrival Estimation (V. Boukun)

2023 Development and Evaluation of Low-Complexity Neural Networks for Personalized Speech Activity Detection (M. Berdau)

2023 Blind MIMO Dereverberation using Switching Filters for Dynamic Acoustic Scenarios (J. Rüsing)

2023 Development and Evaluation of Localization Algorithms for Siren Signals in Real-World Application Scenarios (T. Sander)

2023 Autonomous AirTaxi Ground Station Tool in Virtual Reality (VR) Integrating 3D Radar Simulation and Visualization (M. Gopani)

2022 Development of an algorithm for real-time acoustic stimulation of slow neuronal oscillations during deep sleep (L. Kramer)

2021 Informed single- and multi-microphone algorithms for speech communication exploiting an in-ear microphone (M. Ohlenbusch)

2021 GSC-based Noise and Interference Reduction for binaural hearing aids exploiting external microphones (W. Middelberg)

2021 Blind Geometry Estimation of a Distributed Microphone Array Using Reverberant Speech (K. Brümann)

2020 Combined feedback cancellation and acoustical transparency for a multi-microphone earpiece (F. Kunze)

2020 Grey-box modeling of loudspeaker nonlinearities to improve acoustic echo cancellation algorithms (R. Liebchen)

2020 MIMO Convolutional Beamforming for Joint Dereverberation and Denoising (H. Gode)

2020 Active Noise Control for hearing devices using Delta-Sigma modulation and low-latency digital filter techniques (M. Kreuzhage)

2019 Evaluation of source separation algorithms for speech intelligibility improvement of broadcast signals (C. Dachmann)

2019 Optimisation of single-channel DNN-based speech enhancement (M. Zimmermann)

2019 Semi-Automatic Magnetic Map Creation For Indoor Localization (D. Fejgin)

2018 Preprocessing and noise reduction of speech for playback in reverberant and noisy environments (A. Pusch)

2018 Binaural source localization for hearing aids incorporating an external microphone signal (M.-A. Lacroix)

2018 Extension and Evaluation of Multichannel Diffuse Power Spectral Density Estimators (M. Tammen)

2018 Development and Evaluation of Weighted Partial Noise Preservation Algorithms for Binaural Hearing Aids (J. Klug)

2018 Evaluating Feedback Cancellation using a Null-Steering Beamformer for Public Address Systems (J. Deza Sorribas)

2017 Analysis and evaluation of multichannel frequency-domain acoustic echo cancellation algorithms (S. Wilksen)

2015 Extension and Validation of Near-End Listening Enhancement Algorithms for Hearing-Impaired Listeners (D. Hülsmeier)

2014 Analysis of multichannel noise reduction algorithms for spatially distributed microphones and sources (A. Volgenandt)

2012 Development and evaluation of near-end listening enhancement algorithms (H. Schepker)

2012 Sensor Localization in Acoustic Sensor Networks (C. Bartsch)

2012 Analysis of human and algorithmic ability to estimate relative speaker orientation (S. Franz)

2012 Reduction of Gaussian, Supergaussian and Impulsive Noise by Processing of the Binary Masking Residual (M. Ruhland)

2011 Analysis of joint pitch and position estimation for simultaneous speakers (S. Gerlach)

2010 Sensor position optimization for superdirective beamforming (I. Kodrasi)

2009 Active noise reduction for cars (K. De Noël, M. Vercruysse)

2007 Blind source separation and localisation of multiple speakers (B. Cornelis, K. Vanderloock)

2006 Real-time implementation of multi-microphone noise reduction techniques in hearing aids (S. Günaydin, S. Heselmans)

2006 Binaural signal processing for hearing aids: Compression (J. Beckers, L. Vandevenne)

2003 Multi-microphone source localisation and noise reduction techniques for speech applications (S. Van Hoef)

2001 Speech dereverberation techniques for voice-controlled systems (P. Vandewalle)

2000 Detection algorithms for echo and noise suppression applications (D. Warnez)

1999 Speech enhancement using iterative Wiener filtering techniques (A. Spriet, K. Vanbleu)

1999 DSP implementation of spectral subtraction techniques for speech enhancement (R. Geeroms)

PUBLICATIONS

Google Scholar: Citations: 8920, h-index: 45

International Journal Papers

1. M. Ohlenbusch, C. Rollwage, **S. Doclo**, Modeling of speech-dependent own voice transfer characteristics for hearables with an in-ear microphone, *Acta Acustica*, vol. 8, no. 28, 2024.
2. R. Varzandeh, **S. Doclo**, V. Hohmann, Speech-aware Binaural DOA Estimation Utilizing Periodicity and Spatial Features in Convolutional Neural Networks, *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 43, pp. 1198-1213, 2024.
3. M. Tammen, **S. Doclo**, Parameter Estimation Procedures for Deep Multi-Frame MVDR Filtering for Single-Microphone Speech Enhancement, *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 31, pp. 3237-3248, 2023.
4. P. Didier, T. van Waterschoot, **S. Doclo**, M. Moonen, Sampling Rate Offset Estimation and Compensation for Distributed Adaptive Node-Specific Signal Estimation in Wireless Acoustic Sensor Networks, *IEEE Open Journal of Signal Processing*, vol. 4, pp. 71-79, 2023.
5. N. K. Desiraju, **S. Doclo**, M. Buck, T. Wolff, Joint Online Estimation of Early and Late Residual Echo PSD for Residual Echo Suppression, *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 31, pp. 333-344, 2023.
6. E. Hadad, **S. Doclo,** S. Nordholm, S. Gannot, A Class of Pareto Optimal Binaural Beamformers, *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 30, pp. 2612-2628, 2022.
7. H. Schepker, F. Denk, B. Kollmeier, **S. Doclo**, Robust single- and multi-loudspeaker least-squares-based equalization for hearing devices, *EURASIP Journal on Audio, Speech, and Music Processing*, 2022:15.
8. A. Aroudi, E. Fischer, M. Serman, H. Puder, **S. Doclo**, Closed-loop cognitive-driven gain control of competing sounds using auditory attention decoding, *Algorithms, special issue on Frontiers in EEG Signal Processing*, vol. 14, no. 10, 287, 2021.
9. M. Fallahi, M. Hansen, **S. Doclo**, S. van de Par, D. Püschel, M. Blau, Dynamic Binaural Rendering: The Advantage of Virtual Artificial Heads over Conventional Ones for Localization with Speech Signals, *Applied Sciences, special issue on Psychoacoustics for Extended Reality*, vol. 11, no. 15, 6793, 2021.
10. M. Fallahi, M. Hansen, **S. Doclo**, S. van de Par, D. Püschel, M. Blau, Evaluation of head-tracked binaural auralizations of speech signals generated with a virtual artificial head in anechoic and classroom environments, *Acta Acustica*, vol. 5, no. 30, 2021.
11. D. Fischer, **S. Doclo**, Robust Constrained MFMVDR Filters for Single-Channel Speech Enhancement based on Spherical Uncertainty Set, *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 29, pp. 618-631, 2021.
12. N. Gößling, D. Marquardt, **S. Doclo**, Performance Analysis of the Extended Binaural MVDR Beamformer with Partial Noise Estimation, *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 29, pp. 462-476, 2021
13. N. Gößling, E. Hadad, S. Gannot, **S. Doclo**, "Binaural LCMV Beamforming with Partial Noise Estimation," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 28, pp. 2942-2955, 2020.
14. F. Denk, H. Schepker, **S. Doclo**, B. Kollmeier, "Acoustic Transparency in Hearables - Technical Evaluation," *Journal of the Audio Engineering Society*, vol. 68, no. 7/8, pp. 508–521, Jul./Aug. 2020.
15. H. Schepker, F. Denk, B. Kollmeier, **S. Doclo**, "Acoustic Transparency in Hearables - Perceptual Sound Quality Evaluations," *Journal of the Audio Engineering Society*, vol. 68, no. 7/8, pp. 495–507, Jul./Aug. 2020.
16. N. Gößling, D. Marquardt, **S. Doclo**, "Perceptual Evaluation of Binaural MVDR-based Algorithms to Preserve the Interaural Coherence of Diffuse Noise Fields," *Trends in Hearing*, vol. 24, pp. 1–18, Apr. 2020.

17. H. Schepker, S. Nordholm, **S. Doclo**, "Acoustic feedback suppression for multi-microphone hearing devices using a soft-constrained null-steeering beamformer," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 28, pp. 929-940, 2020.
18. A. Aroudi, **S. Doclo**, "Cognitive-driven binaural beamforming using EEG-based auditory attention decoding," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 28, pp. 862-875, 2020.
19. T. Dietzen, **S. Doclo**, M. Moonen, T. van Waterschoot, "Square root-based multi-source early PSD estimation and recursive RETF update in reverberant environments by means of the orthogonal Procrustes problem," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 28, pp. 755-769, 2020.
20. T. Dietzen, **S. Doclo**, M. Moonen, T. van Waterschoot, "Integrated sidelobe cancellation and linear prediction Kalman filter for joint multi-microphone speech dereverberation, interfering speech cancellation, and noise reduction," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 28, pp. 740-754, 2020.
21. N. K. Desiraju, **S. Doclo**, M. Buck, T. Wolff, "Online Estimation of Reverberation Parameters for Late Residual Echo Suppression," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 28, pp. 77-91, 2020.
22. T. Sankowsky-Rothe, H. Schepker, **S. Doclo**, M. Blau, "Acoustic feedback path modeling for hearing aids: comparison of physical position based and position independent models," *Journal of the Acoustical Society of America*, vol. 147, no. 1, pp. 85-100, Jan. 2020.
23. B. Cauchi, K. Siedenburg, J. F. Santos, T. H. Falk, **S. Doclo**, S. Goetze, "Non-intrusive speech quality prediction using modulation energies and LSTM-network," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 27, no. 7, pp. 1151-1163, Jul. 2019.
24. A. Aroudi, B. Mirkovic, M. De Vos, **S. Doclo**, "Impact of Different Acoustic Components on EEG-based Auditory Attention Decoding in Noisy and Reverberant Conditions," *IEEE Trans. Neural Systems and Rehabilitation Engineering*, vol. 27, no. 4, pp. 652-663, Apr. 2019.
25. H. Schepker, L. T. T. Tran, S. Nordholm, **S. Doclo**, "Null-steering beamformer based feedback cancellation for multi-microphone hearing aids with incoming signal preservation," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 27, no. 4, pp. 679-691, Apr. 2019.
26. T. Dietzen, A. Spriet, W. Tirry, **S. Doclo**, M. Moonen, T. van Waterschoot, "Comparative Analysis of Generalized Sidelobe Cancellation and Multi-Channel Linear Prediction for Speech Dereverberation and Noise Reduction," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 27, no. 3, pp. 544-558, Mar. 2019.
27. M. Brandt, **S. Doclo**, J. Bitzer, "Automatic Noise PSD Estimation for Restoration of Archived Audio," *Journal of the Audio Engineering Society*, vol. 67, no. 1/2, pp. 38-53, Jan/Feb 2019.
28. J. Rennies, A. Pusch, H. Schepker, **S. Doclo**, "Evaluation of near-end listening enhancement algorithms by combined speech intelligibility and listening effort measurements," *Journal of the Acoustical Society of America*, vol. 144, no. 4, EL315-EL321, Oct. 2018.
29. D. Marquardt, **S. Doclo**, "Interaural Coherence Preservation in Binaural Hearing Aids using Partial Noise Estimation and Spectral Postfiltering," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 26, no. 7, pp. 1257-1270, Jul. 2018.
30. I. Kodrasi, **S. Doclo**, "Analysis of Eigenvalue Decomposition-Based Late Reverberation Power Spectral Density Estimation," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 26, no. 6, pp. 1106-1118, June 2018.
31. S. Braun, A. Kuklasinski, O. Schwartz, O. Thiergart, E. A. P. Habets, S. Gannot, **S. Doclo**, J. Jensen, "Evaluation and Comparison of Late Reverberation Power Spectral Density Estimators," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 26, no. 6, pp. 1056-1071, June 2018.
32. L. T. T. Tran, S. Nordholm, H. Schepker, H. H. Dam, **S. Doclo**, "Two-Microphone Hearing Aids Using Prediction Error Method for Adaptive Feedback Control," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 26, no. 5, pp. 909-923, May 2018.

33. I. Kodrasi, **S. Doclo**, "Improving the Conditioning of the Optimization Criterion in Acoustic Multi-Channel Equalization Using Shorter Reshaping Filters," *EURASIP Journal on Advances in Signal Processing*, 2018:11, pp. 1-13.
34. S. Nordholm, H. Schepker, L. T. T. Tran, **S. Doclo**, "Stability-Controlled Hybrid Adaptive Feedback Cancellation Scheme for Hearing Aids," *Journal of the Acoustical Society of America*, vol. 143, no. 1, pp. 150-166, Jan. 2018.
35. M. Brandt, **S. Doclo**, T. Gerkmann, J. Bitzer, "Impulsive Disturbances in Audio Archives: Signal Classification for Automatic Restoration," *Journal of the Audio Engineering Society*, vol. 65, no. 10, pp. 826-840, Oct. 2017.
36. N. K. Desiraju, **S. Doclo**, T. Wolff, "Efficient multichannel acoustic echo cancellation using constrained tap selection schemes in the subband domain," *EURASIP Journal on Advances in Signal Processing*, 2017:63, pp. 1-16.
37. I. Kodrasi, **S. Doclo**, "Signal-Dependent Penalty Functions for Robust Acoustic Multi-Channel Equalization," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 25, no. 7, pp. 1512-1525, Jul. 2017.
38. E. Rasumow, M. Blau, **S. Doclo**, S. van de Par, M. Hansen, D. Püschel, V. Mellert, "Perceptual evaluation of individualized binaural reproduction using a virtual artificial head," *Journal of the Audio Engineering Society*, vol. 65, no. 6, pp. 448-459, June 2017.
39. J. Rennies-Hochmuth, J. Drefs, D. Hülsmeier, H. Schepker, **S. Doclo**, "Extension and evaluation of a near-end listening enhancement algorithm for listeners with normal and impaired hearing," *Journal of the Acoustical Society of America*, vol 141, no. 4, pp. 2526-2537, Apr. 2017.
40. I. Kodrasi, B. Cauchi, S. Goetze, **S. Doclo**, "Instrumental and perceptual evaluation of dereverberation techniques based on robust acoustic multi-channel equalization," *Journal of the Audio Engineering Society*, vol. 65, no. 1/2, Jan./Feb. 2017, pp. 117-129.
41. A. Jukić, T. van Waterschoot, T. Gerkmann, **S. Doclo**, "A general framework for incorporating time-frequency domain sparsity in multi-channel speech dereverberation," *Journal of the Audio Engineering Society*, vol. 65, no. 1/2, Jan./Feb. 2017, pp. 17-30.
42. A. Jukić, T. van Waterschoot, **S. Doclo**, "Adaptive speech dereverberation using constrained sparse multi-channel linear prediction," *IEEE Signal Processing Letters*, vol. 24, no. 1, pp. 101-105, Jan. 2017.
43. A. Kuklasinski, **S. Doclo**, S. H. Jensen, J. Jensen, "Maximum Likelihood PSD Estimation for Speech Enhancement in Reverberation and Noise," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 24, no. 9, pp. 1595-1608, Sep. 2016.
44. H. Schepker, **S. Doclo**, "Least-squares estimation of the common pole-zero filter of acoustic feedback paths in hearing aids," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 24, no. 8, pp. 1334-1347, Aug. 2016.
45. S. Grimm, T. C. Lawin-Ore, **S. Doclo**, J. Freudenberger, "Phase Reference for the generalized multichannel Wiener Filter," *EURASIP Journal on Advances in Signal Processing*, 2016:78, pp. 1-10.
46. I. Kodrasi, **S. Doclo**, "Joint Dereverberation and Noise Reduction Based on Acoustic Multichannel Equalization," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 24, no. 4, pp. 680-693, Apr. 2016.
47. E. Hadad, **S. Doclo**, S. Gannot, "The Binaural LCMV Beamformer and its Performance Analysis," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 24, no. 3, pp. 543-558, Mar. 2016.
48. L. Wang, **S. Doclo**, "Correlation Maximization Based Sampling Rate Offset Estimation for Distributed Microphone Arrays," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 24, no. 3, pp. 571-582, Mar. 2016.
49. E. Rasumow, M. Hansen, S. van de Par, D. Püschel, V. Mellert, **S. Doclo**, M. Blau, "Regularization approaches for synthesizing HRTF directivity patterns," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 24, no. 2, pp. 215-225, Feb. 2016.
50. N. Mohammadiha, **S. Doclo**, "Speech Dereverberation Using Non-negative Convolutive Transfer Function and Spectro-temporal Modeling," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 24, no. 2, pp. 276-289, Feb. 2016.

51. H. Schepker, **S. Doclo**, "A semidefinite programming approach to min-max estimation of the common part of acoustic feedback paths in hearing aids," *IEEE/ACM Trans. Audio, Speech and Language Processing*, vol. 24, no. 2, pp. 366-377, Feb. 2016.
52. J. Thiemann, M. Müller, D. Marquardt, **S. Doclo**, S. van de Par, "Speech Enhancement for Multimicrophone Binaural Hearing Aids Aiming to Preserve the Spatial Auditory Scene," *EURASIP Journal on Advances in Signal Processing*, 2016:12, pp. 1-11.
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10. W. Middelberg, **S. Doclo**, "MPDR-Based Extended GSC Structure for Joint Noise and Interferer Reduction in Hearing Devices," *German Annual Conference on Acoustics (DAGA)*, Stuttgart, Germany, Mar. 2022.
11. J. Rennies, R. Sinha, C. Rollwage, A.-C. Scherer, **S. Doclo**, "Online-capable single-channel voice filter improves speech perception in speech-on-speech masking conditions," *German Annual Conference on Acoustics (DAGA)*, Stuttgart, Germany, Mar. 2022.
12. R. Attili Chiea, **S. Doclo**, "Single-channel speech enhancement using temporal convolutional networks: application on cochlear implants," *DGBMT Annual Conference on Biomedical Engineering*, Hannover, Germany, Oct. 2021.
13. P. Rivera Benois, R. Roden, M. Blau, **S. Doclo**, "Sound Pressure Minimization at the Ear Drum Using an In-Ear Earpiece with a Feedback ANC Controller Based on the Virtual Microphone Arrangement Approach," *German Annual Conference on Acoustics (DAGA),* Vienna, Austria, Aug. 2021.
14. **S. Doclo**, "Cognitive-Driven Binaural Beamforming for Hearing Devices Using EEG-Based Auditory Attention Decoding," *Conference on Implantable Auditory Prostheses (CIAP)*, Lake Tahoe, USA, Jul. 2021.
15. N. Gößling, **S. Doclo**, "Binaural MVDR Beamforming Incorporating External Microphones in Complex Acoustic Scenarios," *Erlanger Kolloquium for Audiological Research and Development*, Erlangen, Germany, Feb. 2020.
16. F. Denk, H. Schepker, **S. Doclo**, B. Kollmeier, "Acoustic transparency of commercial hearables and research hearing devices," *Erlanger Kolloquium for Audiological Research and Development*, Erlangen, Germany, Feb. 2020.
17. A. Aroudi, H. Kayser, **S. Doclo**, "Binary-masking-based auditory attention decoding without access to clean speech signals," *Auditory EEG Signal Processing (AESoP) symposium*, Leuven, Belgium, Sep. 2019.

18. H. Schepker, F. Denk, R. Roden, M. Blau, B. Kollmeier, **S. Doclo**, "Acoustically transparent sound presentation in hearing devices: algorithms, devices, and models," *International Congress on Acoustics (ICA)*, Aachen, Germany, Sep. 2019.
19. N. Gößling, **S. Doclo**, "RTF-Steered Binaural MVDR Beamforming Incorporating an External Microphone for Dynamic Acoustic Scenarios," *International Congress on Acoustics (ICA)*, Aachen, Germany, Sep. 2019.
20. M. Tammen, I. Kodrasi, **S. Doclo**, "Alternating Least Squares-Based Joint Estimation of RETFs and PSDs for Multi-Channel Speech Enhancement," *International Congress on Acoustics (ICA)*, Aachen, Germany, Sep. 2019.
21. A. Aroudi, **S. Doclo**, "Cognitive-Driven Binaural Speech Enhancement System for Hearing Aid Applications," *International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Berlin, Germany, Jul. 2019.
22. W. Middelberg, N. Gößling, **S. Doclo**, "Real-Time Evaluation of an RTF-Steered Binaural MVDR Beamformer Incorporating an External Microphone," *German Annual Conference on Acoustics (DAGA)*, Rostock, Germany, Mar. 2019.
23. N. Gößling, **S. Doclo**, "Comparison of binaural MVDR-based beamforming algorithms using an external microphone," *11th Workshop on Speech in Noise (SpiN),* Gent, Belgium, Jan. 2019.
24. J. Klug, N. Gößling, **S. Doclo**, "Subjective Evaluation of Signal-Dependent Partial Noise Estimation Algorithms for Binaural Hearing Aids," *11th Workshop on Speech in Noise (SpiN),* Gent, Belgium, Jan. 2019.
25. C. F. Hauth, N. Gößling, **S. Doclo**, T. Brand, "Performance Prediction of the Binaural MVDR Beamformer with Partial Noise Estimation using a Binaural Speech Intelligibility Model," *11th Workshop on Speech in Noise (SpiN),* Gent, Belgium, Jan. 2019.
26. M. Tammen, I. Kodrasi, **S. Doclo**, "Joint Estimation of RETFs and PSDs for a Moving Speaker Based on Alternating Least Squares," *ICSEE International Conference on the Science of Electrical Engineering*, Eilat, Israel, Dec. 2018.
27. N. Gößling, **S. Doclo**, "RTF-Based Binaural MVDR Beamformer Exploiting an External Microphone for Dynamic Acoustic Scenarios," *ICSEE International Conference on the Science of Electrical Engineering*, Eilat, Israel, Dec. 2018.
28. N. Gößling, **S. Doclo**, "Comparison of binaural MVDR-based beamforming algorithms using an external microphone," *International Hearing Aid Research Conference (IHCON),* Lake Tahoe, USA, Aug. 2018.
29. J. Klug, D. Marquardt, **S. Doclo**, "Subjective Evaluation of Signal-Dependent Partial Noise Preservation Algorithms for Binaural Hearing Aids," *International Hearing Aid Research Conference (IHCON),* Lake Tahoe, USA, Aug. 2018.
30. D. Marquardt, I. Merks, T. Zhang, **S. Doclo**, "Subjective evaluation of binaural noise reduction and cue preservation algorithms in a cocktail party scenario," *International Hearing Aid Research Conference (IHCON),* Lake Tahoe, USA, Aug. 2018.
31. A. Aroudi, D. Marquardt, **S. Doclo**, "Cognitive-driven binaural speech enhancement system for hearing aid applications," *International Hearing Aid Research Conference (IHCON),* Lake Tahoe, USA, Aug. 2018.
32. H. Schepker, **S. Doclo**, "Evaluation of acoustic feedback cancellation for a multi-microphone earpiece using a null-steering beamformer," *International Hearing Aid Research Conference (IHCON),* Lake Tahoe, USA, Aug. 2018.
33. A. Aroudi, D. Marquardt, **S. Doclo**, "Cognitive-driven binaural speech enhancement system for hearing aid applications," *Auditory EEG Signal Processing (AESoP) symposium,* Leuven, Belgium, May 2018.
34. A. Aroudi, **S. Doclo**, "Auditory Attention Decoding in Reverberant and Noisy Conditions," *Workshop on Signal and Noise along the Auditory Pathway (SNAP),* Lübeck, Germany, Dec. 2017.
35. J. Rennies-Hochmuth, H. Schepker, D. Hülsmeier, J. Drefs, **S. Doclo**, "Evaluating near-end listening enhancement in noise for normal-hearing and hearing-impaired listeners," *Meeting of the Acoustical Society of America and Forum Acusticum*, Boston, USA, Jun. 2017.

36. H. Schepker, **S. Doclo**, "Acoustic feedback cancellation for a novel multi-microphone earpiece combining null-steering and adaptive filtering," *Erlanger Kolloquium for Audiological Research and Development*, Erlangen, Germany, Feb. 2017.
37. D. Fischer, **S. Doclo**, "Multi-Frame MVDR Filtering for Single- and Multi-Microphone Speech Enhancement," *Erlanger Kolloquium for Audiological Research and Development*, Erlangen, Germany, Feb. 2017.
38. J. Rennies-Hochmuth, H. Schepker, D. Hülsmeier, J. Drefs, **S. Doclo**, "Noise-adaptive near-end listening enhancement for normal-hearing and hearing-impaired listeners," *9th Workshop on Speech in Noise: Intelligibility and Quality,* Oldenburg, Germany, Jan. 2017.
39. D. Marquardt, E. Hadad, W.-Q. Pu, **S. Doclo**, S. Gannot, Z.-Q. Luo, I. Merks, T. Zhang, "Performance comparison of two binaural speech enhancement algorithms for hearing aids," *International Hearing Aid Conference (IHCON)*, Lake Tahoe, USA, Aug. 2016.
40. D. Marquardt, H. Kayser, **S. Doclo**, "Evaluation of MVDR-based Noise Reduction Algorithms for Binaural Hearing Aids in the Presence of DOA Estimation Errors," *International Hearing Aid Conference (IHCON)*, Lake Tahoe, USA, Aug. 2016.
41. H. Schepker, **S. Doclo**, "Acoustic Feedback Cancellation for a Multi-Microphone Earpiece using a Null-Steering Beamformer," *International Hearing Aid Conference (IHCON)*, Lake Tahoe, USA, Aug. 2016.
42. A. Aroudi, B. Mirkovic, M. De Vos, **S. Doclo**, "Influence of Noisy Reference Signals on Selective Attention Decoding," *International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, Milan, Italy, Aug. 2015.
43. **S. Doclo**, D. Marquardt, "Binaural Cue Preservation in Noise Reduction Algorithms for Binaural Hearing Aids", *12th Congress of the European Federation of Audiology Societies (EFAS)*, Istanbul, Turkey, May 2015.
44. R. Baumgärtel, D. Marquardt, M. Krawczyk, H. Hu, C. Völker, S. Ernst, T. Herzke, G. Coleman, K. Adiloglu, K. Bomke, K. Plotz, R. Huber, T. Gerkmann, **S. Doclo**, B. Kollmeier, V. Hohmann, M. Dietz, "Instrumental and perceptual assessment of binaural speech enhancement algorithms for bilateral CI users", *12th Congress of the European Federation of Audiology Societies (EFAS)*, Istanbul, Turkey, May 2015.
45. **S. Doclo**, "Noise reduction algorithms in hearing aids: state of the art and evaluation," *18. Jahrestagung der Deutschen Gesellschaft für Audiologie (DGA)*, Bochum, Germany, Mar. 2015
46. N. Mohammadiha, **S. Doclo**, "Supervised Speech Enhancement", *Annual Conference of the German Society for Biomedical Engineering*, Hannover, Germany, Oct. 2014.
47. J. Rennies, A. M. Kubiak, **S. Doclo**, "Personalization of audio playback using intuitive self-fitting interfaces", *Annual Conference of the German Society for Biomedical Engineering*, Hannover, Germany, Oct. 2014.
48. D. Marquardt, V. Hohmann, **S. Doclo**, "Subjective Evaluation of Interaural Coherence Preservation in MWF-based Noise Reduction Algorithms for Binaural Hearing Aids", *International Hearing Aid Conference (IHCON)*, Lake Tahoe, USA, Aug. 2014.
49. H. Schepker, **S. Doclo**, "Common Part Modeling of Acoustic Feedback Paths in open-fitting Hearing Aids", *International Hearing Aid Conference (IHCON),* Lake Tahoe, USA, Aug. 2014.
50. R. Baumgärtel, D. Marquardt, M. Krawczyk, H. Hu, T. Herzke, G. Coleman, K. Adiloglu, K. Bomke, K. Plotz, R. Huber, T. Gerkmann, **S. Doclo**, B. Kollmeier, V. Hohmann, M. Dietz, "Speech understanding in realistic noise environments using binaural signal pre-processing strategies in bilateral CI users", *International Conference on Cochlear Implants and Other Implantable Auditory Technologies*, Munich, June 2014.
51. D. Marquardt, V. Hohmann, **S. Doclo**, "Perceptually motivated preservation of the Interaural Coherence in noise reduction algorithms for binaural hearing aids", *German Annual Conference on Acoustics (DAGA)*, Oldenburg, Germany, Mar. 2014.
52. D. Dalga, **S. Doclo**, "ANC-Motivated Noise Reduction Algorithms for Open-Fitting Hearing Aids", *German Annual Conference on Acoustics (DAGA)*, Oldenburg, Germany, Mar. 2014.

53. H. Schepker, **S. Doclo**, "Comparison of common part modeling of acoustic feedback paths in hearing aids", *German Annual Conference on Acoustics (DAGA),* Oldenburg, Germany, Mar. 2014.
54. D. Marquardt, V. Hohmann, **S. Doclo**, "Combined Noise Reduction and Interaural Coherence Reshaping for Binaural Hearing Aids", *40. Erlanger Kolloquium for Audiological Research and Development*, Erlangen, Germany, Feb. 2013.
55. D. Dalga, **S. Doclo**, "Active Noise Control-Motivated Noise Reduction Algorithms for Open-Fitting Hearing Aids", *40. Erlanger Kolloquium for Audiological Research and Development*, Erlangen, Germany, Feb. 2013.
56. H. Schepker, J. Rennies, **S. Doclo**, "Improving speech intelligibility in background noise by SII-dependent amplification and compression", *5th Workshop on Speech in Noise: Intelligibility and Quality*, Vitoria, Spain, Jan. 2013.
57. D. Marquardt, V. Hohmann, **S. Doclo**, "Coherence Preservation in MWF-based Noise Reduction Algorithms for Binaural Hearing Aids", *Digital Signal Processing in Audiology (AUDIS) Workshop*, Aachen, Germany, Sep. 2012.
58. T. Van den Bogaert, **S. Doclo**, J. Wouters, M. Moonen, "Improvements in speech perception and sound localization in hearing aids using binaural multichannel Wiener filtering," *International Hearing Aid Research Conference (IHCON)*, Lake Tahoe CA, USA, Aug. 2008.
59. J. Wouters, **S. Doclo**, M. Moonen, T. Van den Bogaert, "Speech-in-noise enhancement and sound localization with improved binaural hearing instruments," *Acoustics'08*, Paris, France, Jul. 2008
60. J. Wouters, **S. Doclo**, M. Moonen, T. Van den Bogaert, "The use of both ears: noise reduction and localization with bilateral hearing aids," *8th European Federation of Audiology Societies Congress (EFAS)*, Heidelberg, Germany, June 2007.
61. J. Wouters, **S. Doclo**, K. Eneman, A. Leijon, M. Moonen, A. Spriet, T. Van den Bogaert, "Advanced signal processing for hearing instruments and cochlear implants," *International Conference on Audiology*, Innsbruck, Austria, Sep. 2006.
62. T.J. Klasen, **S. Doclo**, M. Moonen, T. Van den Bogaert, J. Wouters, "Perceptual and theoretical evaluation of the interaural Wiener filter (IWF) algorithm with respect to speech reception thresholds," *International Hearing Aid Research Conference (IHCON)*, Lake Tahoe CA, USA, Aug. 2006.
63. T. Van den Bogaert, J. Wouters, T.J. Klasen, **S. Doclo**, M. Moonen, "Perceptual and theoretical evaluation of the interaural Wiener filter (IWF) algorithm with respect to localization cues," *International Hearing Aid Research Conference (IHCON)*, Lake Tahoe CA, USA, Aug. 2006.
64. J. Patrick, L. Van Deun, A. Spriet, **S. Doclo**. K. Eftaxiadis, J. Laneau, J.-B. Maj, M. Moonen, B. Van Dijk, A. Van Wieringen, J. Wouters, "Better understanding of speech in noise with BEAM™, a two-microphone adaptive beamformer in the Nucleus Freedom™ system," *5th Asia Pacific Symposium on Cochlear Implants and Related Sciences*, Hong Kong, China, Nov. 2005.
65. J. Wouters, L. Van Deun, A. Spriet, **S. Doclo**, J. Laneau, M. Moonen, A. Van Wieringen, "Signal processing strategies for improved speech understanding in noisy listening conditions," *2005 Conference on Implantable Auditory Prostheses (CIAP)*, Pacific Grove CA, USA, Aug. 2005.
66. A. Spriet, L. Van Deun, **S. Doclo**, K. Eftaxiadis, J. Laneau, J.-B. Maj, M. Moonen, B. Van Dijk, A. van Wieringen, J. Wouters, "Evaluation of speech understanding in noise with a two-microphone adaptive beamformer in the new Nucleus cochlear implant system," *7th European Federation of Audiology Societies Congress (EFAS)*, Gøteborg, Sweden, June 2005.
67. **S. Doclo**, A. Spriet, M. Moonen, J. Wouters, "Frequency-Domain Criterion for Speech Distortion Weighted Multichannel Wiener Filtering for Robust Noise Reduction," *Joint Workshop on Hands-Free Speech Communication and Microphone Arrays (HSCMA)*, Piscataway NJ, USA, Mar. 2005.
68. J. Wouters, A. Spriet, L. Van Deun, **S. Doclo**, K. Eftaxiadis, J. Laneau, M. Moonen, B. Van Dijk, A. van Wieringen, "Enhanced speech understanding with a two-microphone adaptive beamformer in the new Nucleus cochlear implant system," *10th Symposium on Cochlear Implants in Children*, Dallas TX, USA, Mar. 2005.
69. L. Van Deun, A. Spriet, **S. Doclo**, K. Eftaxiadis, J. Laneau, J.-B. Maj, M. Moonen, B. Van Dijk, A. van Wieringen, J. Wouters, "Benefit of a two-microphone adaptive beamformer in the new Nucleus cochlear

implant system," *International Collegium for Rehabilitative Audiology (ICRA),* Gainesville FL, USA, Mar. 2005.

70. **S. Doclo**, A. Spriet, J. Wouters, M. Moonen, "Design, implementation and evaluation of a robust multi-microphone noise reduction algorithm for hearing instruments," *International Hearing Aid Research Conference (IHCON)*, Lake Tahoe CA, USA, Aug. 2004.
71. J. Wouters, **S. Doclo**, T. Klasen, J.-B. Maj, M. Moonen, L. Royackers, A. Spriet, T. Van den Bogaert, "Noise reduction approaches for improved speech perception," *International Hearing Aid Research Conference (IHCON)*, Lake Tahoe CA, USA, Aug. 2004.
72. **S. Doclo**, A. Spriet, J.-B. Maj, M. Moonen, J. Wouters, B. Van Dijk, J. Janssen, "Design and low-cost implementation of a robust multichannel noise reduction scheme for cochlear implants," *DSP Valley Annual Research and Technology Symposium (DARTS)*, Leuven, Belgium, Oct. 2003.
73. **S. Doclo**, M. Moonen, "Design of robust broadband beamformers for speech applications," *International Workshop on Microphone Array Systems*, Erlangen, Germany, May 2003.
74. **S. Doclo**, M. Moonen, "Multi-microphone noise reduction using GSVD-based optimal filtering," *International Workshop on Microphone Array Systems*, Boston MA, USA, Oct. 2000.

PATENTS

S. Doclo, A. Spriet, M. Moonen, J. Wouters, "Method and device for noise reduction" (US7657038; EP1652404; JP4989967)

S. Haykin, R. Dong, **S. Doclo**, M. Moonen, "Method and device for binaural signal enhancement" (US8139787)

S. Doclo, T.J. Klasen, M. Moonen, T. Van den Bogaert, J. Wouters, R.P. Derleth, S. Korl, "Hearing system and method implementing binaural noise reduction preserving interaural transfer functions" (US2010002886; EP2016799)

T. Gautama, **S. Doclo**, "Hybrid active noise reduction device for reducing environmental noise, method for determining an operational parameter of a hybrid active noise reduction device, and program element" (EP2259250)

S. Doclo, "Active noise reduction method using perceptual masking" (US9437182; EP2284831; CN101989423)

H. Schepker, J. Rennies, **S. Doclo**, J. E. Appell, "Improving speech intelligibility in background noise by SII-dependent amplification and compression" (US10319394; EP2943954; JP6162254)

D. Püschel, M. Blau, S. Köhler, E. Rasumow, S. van de Par, M. Hansen, **S. Doclo**, V. Mellert, "Device and method for the determination of head-related transfer functions" (DE102014204368)

INVITED LECTURES

1. "Model-Based and Learning-Based Approaches for Speech Enhancement and Source Localisation", European Signal Processing Conference, Helsinki, Finland, Sep. 2023. **(keynote)**
2. "DNN-based speech enhancement for hearing devices", Hearing Aid Developer Forum, Oldenburg, Germany, June 2023.
3. "Acoustically Transparent Earpiece: Equalization, Feedback cancellation, Active noise control and Own voice pickup", Danish Sound Cluster, online, May 2023.
4. "Model-Based and Learning-Based Approaches for Speech Enhancement and Source Localisation", Aalborg University, Aalborg, Denmark, Mar. 2023.
5. "Model-Based and Learning-Based Approaches for Speech Enhancement and Source Localisation", Technion, Haifa, Israel, Feb. 2023.
6. "Model-Based and Learning-Based Approaches for Speech Enhancement and Source Localisation", Bar-Ilan University, Tel Aviv, Israel, Feb. 2023.

7. “Model-Based and Learning-Based Approaches for Speech Enhancement and Source Localisation”, NTT Communication Science Laboratories, Kyoto, Japan, Dec. 2022.
8. “Model-Based and Learning-Based Approaches for Speech Enhancement”, LINE Corporation, Tokyo, Japan, Dec. 2022.
9. “Binaural noise reduction, source localisation and acoustic transparency for hearing devices”, Rion, Tokyo, Japan, Dec. 2022.
10. “Model-Based and Learning-Based Approaches for Speech Enhancement”, Tokyo Metropolitan University, Tokyo, Japan, Dec. 2022.
11. “Model-Based and Learning-Based Approaches for Speech Enhancement”, Google, Tokyo, Japan, Dec. 2022.
12. “Model-Based and Learning-Based Approaches for Speech Enhancement”, Amazon Web Services, Palo Alto, USA, Aug. 2022.
13. “Cognitive-Driven Binaural Beamforming for Hearing Devices Using EEG-Based Auditory Attention Decoding,” Conference on Implantable Auditory Prostheses (CIAP), on-line, Jul. 2021.
14. “Acoustic Transparency in Hearables - Technical and Perceptual Sound Quality Evaluation”, Hearing4all Symposium, on-line, Nov. 2020.
15. “Blind multi-microphone noise reduction and dereverberation algorithms for speech communication applications”, Informatics Colloquium, University of Hamburg, Germany, Nov. 2019.
16. “Blind multi-microphone noise reduction and dereverberation algorithms for speech communication applications”, Microsoft Research, Redmond, USA, Oct. 2019.
17. “Blind multi-microphone noise reduction and dereverberation algorithms for speech communication applications”, SANE (Speech and Audio in the Northeast) Workshop, New York, USA, Oct. 2019. **(keynote)**
18. “Acoustically transparent sound presentation in hearing devices: algorithms, devices and models”, International Congress on Acoustics, Aachen, Germany, Sep. 2019.
19. “Joint Estimation of RETFs and PSDs for Multi-Channel Speech Enhancement”, International Congress on Acoustics, Aachen, Germany, Sep. 2019.
20. “RTF-Steered Binaural MVDR Beamforming Incorporating an External Microphone for Dynamic Acoustic Scenarios”, International Congress on Acoustics, Aachen, Germany, Sep. 2019.
21. “Exploiting external microphones for speech enhancement algorithms in hearing aids”, Hearing Aid Developers Forum, Oldenburg, Germany, June 2019.
22. “Binaural speech enhancement and cue preservation algorithms,” International Symposium on auditory scene analysis in music and speech, Delmenhorst, Germany, Mar. 2019.
23. “Binaural speech enhancement and cue preservation algorithms,” ELOBES Workshop - Optimising Binaural Hearing for Environment and Listener, Gent, Belgium, Jan. 2019. (**keynote**)
24. “Cognitive-Driven Binaural Speech Enhancement System for Hearing Aid Applications”, International Hearing Aid Research Conference, Lake Tahoe, USA, Aug. 2018.
25. “Algorithmen zur Verbesserung der Sprachqualität in Hörgeräten“, Oticon Symposium, Hamburg, Germany, Nov. 2017.
26. “Acoustically Transparent Hearing Device: Towards Integration of Individualized Sound Equalization, Electro-Acoustic Modeling and Feedback Cancellation”, International Workshop on Challenges in Hearing Assistive Technology, Stockholm, Sweden, Aug. 2017.
27. “A Simulation Study on Binaural Dereverberation and Noise Reduction based on Diffuse Power Spectral Density Estimators,” International Workshop on Challenges in Hearing Assistive Technology, Stockholm, Sweden, Aug. 2017.
28. “Highlights from Hearing4all for patients with hearing aids and the subclinical population”, European Federation of Audiology Societies Conference, Interlaken, Switzerland, June 2017.
29. “Binaural beamforming and acoustic sensor networks”, DEGA Electroacoustics Technical Committee Meeting, Ilmenau, Germany, Feb. 2017.

30. “Recent advances in noise reduction and dereverberation algorithms for binaural hearing aids”, Erlanger Kolloquium for Audiological Research and Development, Erlangen, Germany, Feb. 2017. **(keynote)**
31. “Incorporating sparsity into multi-microphone speech dereverberation techniques,” ICSEE Symposium on Speech and Audio Processing, Eilat, Israel, Nov. 2016.
32. “Overview of acoustic signal processing research”, NXP Semiconductors, Leuven, Belgium, Mar. 2016.
33. “Design and evaluation of binaural speech enhancement and cue preservation algorithms”, KU Leuven (Experimental Oto-rhino-laryngology, Dept. Electrical Engineering), Leuven, Belgium, Mar. 2016.
34. “Binaural Cue Preservation in Noise Reduction Algorithms for Binaural Hearing Aids”, Binaural Hearing Workshop, Delmenhorst, Germany, June 2015.
35. “Binaural Cue Preservation in Noise Reduction Algorithms for Binaural Hearing Aids”, Hearing Aid Developers Forum, Oldenburg, Germany, June 2015.
36. “Binaural Cue Preservation in Noise Reduction Algorithms for Binaural Hearing Aids”, 12th European Federation of Audiology Societies Congress, Istanbul, Turkey, June 2015.
37. “Binaural noise reduction for hearing aids”, Starkey Hearing Technologies and IEEE-TC SP/COM Chapter Joint Meeting, Minneapolis, USA, Oct. 2013.
38. “Spatial cue preservation for binaural noise reduction”, Hearing Aid Developers Forum, Oldenburg, Germany, June 2013.
39. “Non-Intrusive Regularization for Least-Squares Multichannel Equalization Techniques for Speech Dereverberation,” IEEE Convention of Electrical and Electronics Engineers in Israel, Eilat, Israel, Nov. 2012.
40. “Signal processing algorithms for wirelessly connected hearing devices”, Nordic Audiology College, Stockholm, Sweden, Sep. 2012.
41. “Statistical Room Acoustics in Acoustic Sensor Networks”, NTT Communication Science Labs, Kyoto, Japan, Apr. 2012.
42. “Digital Signal Processing in Hearing Aids”, DGMP Winter school on Audiology and Signal Processing, Pichl, Austria, Feb 2012.
43. “Signal processing for open-fitting hearing aids“, Kolloquium Kommunikationstechnik, IND - RWTH Aachen, Germany, July 2011.
44. “Hearing devices using wireless acoustic sensor networks”, Hearing Aid Developers Forum, Oldenburg, Germany, June 2011. **(keynote)**
45. “Distributed microphone array signal processing with rate constraints”, ITG Conference Speech Communication, Bochum, Germany, Oct. 2010.
46. “Distributed microphone array signal processing for hearing aids”, International Workshop on Acoustic Echo and Noise Control (IWAENC), Tel Aviv, Israel, Sep 2010. **(keynote)**
47. “Distributed microphone array signal processing in hearing aids”, tubs.CITY Symposium – Workshop on Spoken Language Processing, Braunschweig, Germany, June 2010.
48. “Speech signal processing in noisy and reverberant acoustic environments”, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore, Sep 2007.
49. “Noise reduction and binaural cue preservation of multi-microphone algorithms”, International Forum for hearing instruments developers, Oldenburg, Germany, June 2007.
50. “Robust multi-microphone speech enhancement for hearing instruments”, Dept. of Electrical and Computer Engineering, University of Waterloo, Canada, May 2007.
51. “Binaural noise reduction using the Interaural Wiener Filter: physical and perceptual evaluation,” Joint Acoustics, Medical Physics, and Signal Processing Seminar, University of Oldenburg, Germany, Oct. 2006.
52. “Binaural Noise Reduction for Hearing Aids,” ASIP-NET Seminar, Smørum, Denmark, Oct. 2006.
53. “Robust multi-microphone noise reduction in hearing instruments”, ASL Seminar, McMaster University, Hamilton, Canada, Mar. 2005.
54. “Microphone array noise reduction and dereverberation techniques for speech applications”, SPS Seminar, Technical University of Eindhoven, The Netherlands, Dec. 2004.

55. “Design and low-cost implementation of a robust multichannel noise reduction scheme for cochlear implants”, IKA Seminar, Ruhr-University Bochum, Germany, Jan. 2004.
56. “Design and low-cost implementation of a robust multichannel noise reduction scheme for cochlear implants,” IND Seminar, RWTH Aachen, Germany, Jan. 2004.
57. “Design and low-cost implementation of a robust multichannel noise reduction scheme for cochlear implants,” DSP Valley Annual Research and Technology Symposium, Leuven, Belgium, Oct. 2003.
58. “Multi-microphone noise reduction and dereverberation techniques for speech applications”, SPS Seminar, Technical University of Eindhoven, The Netherlands, July 2003.
59. “Applications of DSP in Audio and Digital Communications”, GroepT Hogeschool, Leuven, Belgium, Dec. 2001.
60. “Multi-microphone signal enhancement techniques for noisy speech signals”, TCTS Seminar, Faculté Polytechnique de Mons, Belgium, Dec. 1999.