

Abigail Anne Kressner

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Education

2011-2015	Ph.D. · Electrical and Computer Engineering · Georgia Institute of Technology
2009-2011	M.S. · Electrical and Computer Engineering · Georgia Institute of Technology
2008	Audiology · Vanderbilt University
2004-2007	B.S. · Biomedical Engineering · Washington University in St. Louis

Positions

2019-present	Assistant Professor · Technical University of Denmark and Rigshospitalet
2017	Visiting Postdoctoral Researcher · Cochlear, Ltd · Melbourne, Australia
2015-2019	Postdoctoral Researcher · Technical University of Denmark
2014-2015	Visiting Scholar · National Acoustic Laboratories · Sydney, Australia
2008	Research Intern · Widex A/S · Værløse, Denmark
2007	Research Intern · Knowles Electronics, LLC · Illinois, USA
2006	Research Intern · AuSIM, Inc · California, USA

Research support

2022-2023	Project grant co-funded by GN Resound, Widex, and Demant (PI; DKK 1.5m)
2015-2017	Postdoctoral grant from Det Frie Forskningsråd (DFF; Danish Council for Independent Research; DKK 1.8m)
2014-2015	National Science Foundation (NSF) Graduate Research Opportunities Worldwide (GROW; AUD 20k)
2010-2015	National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP; USD 138k)
2010-2013	National Defense Science & Engineering Graduate (NDSEG) Fellowship (USD 225k)

Awards

2014	International Hearing Aid Conference (IHCON) Scholarship
2014	Chih Foundation Research Award
2009-2013	President's Fellowship · Georgia Institute of Technology
2011	ISAAR and GN Foundation Young Scientist Conference Scholarship
2010	21st Annual SAIC Student Paper Competition · First place
2004-2007	Jeffrey & Nancy Balter Biomedical Engineering Scholar · Washington University in St. Louis
2004-2005	Society of Women Engineers Scholar

Teaching education

Young Researcher Training Programme · Technical University of Denmark · 2018-2019
University Teacher Training Programme (UDTU) · Technical University of Denmark · 2016-present

Student supervision

PhD co-supervision: 4; MSc/BSc co-supervision: 6

Professional activities

2021-present	Member of the Danish Sound Cluster's working group on 'Healthcare and welfare'
2019-present	Member of Rigshospitalet's Ear, Nose, and Throat Surgical & Audiological Clinic's Research Council
2019-present	Organizing committee for the International Symposium on Auditory and Audiological Research
2019-2020	Technical Committee for the Baltic-Nordic Acoustic Meeting 2020
2013-2014	Member of American Auditory Society
2010-2014	Member of Institute of Electrical and Electronics Engineers (IEEE) and IEEE Signal Processing Society

Editorial activities

2021-present	Topic Editor for Audiology Research
2019-present	Editor for the Proceedings of the International Symposium on Auditory and Audiological Research
2019-present	Reviewer for the Journal of the Association for Research in Otolaryngology
2018-present	Reviewer for Trends in Hearing
2017-present	Reviewer for Speech Communication
2016-present	Reviewer for Journal of the Acoustical Society of America

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Publications

Journal publications

West, N. C., Kressner, A. A., Baungaard, L. H., Sandvej, M. G., Bille, M., & Cayé-Thomasen, P. (2020). Nordic results of cochlear implantation in adults: speech perception and patient reported outcomes. *Acta Oto-Laryngologica*, 140(11), 939–947. <https://doi.org/10.1080/00016489.2020.1816656>

Thomas Bentsen, Stefan J. Mauger, Abigail Anne Kressner, Tobias May, and Torsten Dau. The impact of noise power estimation on speech intelligibility in cochlear-implant speech coding strategies, *Journal of the Acoustical Society of America*, 145(2):818-821, February 2019. [paper]

Abigail Anne Kressner, Tobias May, and Torsten Dau. The effect of noise reduction gain errors on simulated cochlear implant speech intelligibility, *Trends in Hearing*, 23:1-12, February 2019. [paper]

Abigail Anne Kressner, Adam Westermann, and Jörg Matthias Buchholz. The impact of reverberation on speech intelligibility in cochlear implant recipients, *Journal of the Acoustical Society of America*, 144(2):1113-1122, August 2018. [paper]

Thomas Bentsen, Tobias May, Abigail Anne Kressner, and Torsten Dau. The benefit of combining a deep neural network architecture with ideal ratio mask estimation in computational speech segregation to improve speech intelligibility, *PLOS ONE*, 13(5):e0196924, May 2018. [paper]

Thomas Bentsen, Abigail Anne Kressner, Torsten Dau, and Tobias May. The impact of exploiting spectro-temporal context in computational speech segregation. *Journal of the Acoustical Society of America*, 143(1):248-259, January 2018. [paper]

Abigail Anne Kressner, Tobias May, and Christopher John Rozell. Outcome measures based on classification performance fail to predict the intelligibility of binary-masked speech. *Journal of the Acoustical Society of America*, 139(6):3033-3036, June 2016. [paper]

Abigail Anne Kressner, Adam Westermann, Jörg Matthias Buchholz, and Christopher John Rozell. Cochlear implant speech intelligibility outcomes with structured and unstructured binary mask errors. *Journal of the Acoustical Society of America*, 139(2):800-810, February 2016. [paper]

Abigail Anne Kressner and Christopher John Rozell. Structure in time-frequency binary masking errors and its impact on speech intelligibility. *Journal of the Acoustical Society of America*, 137(4):2025-2035, April 2015. [paper, code]

Abigail Anne Kressner, David V. Anderson, and Christopher John Rozell. Evaluating the generalization of the Hearing Aid Speech Quality Index (HASQI). *IEEE Transactions in Audio, Speech and Language Processing*, 21(2):407-415, February 2013. [paper, code]

Conference publications

Abigail Anne Kressner, Tobias May, Rasmus Malik Thaarup Høegh, Kristine Aavild Juhl, Thomas Bentsen, and Torsten Dau. Investigating the effects of noise-estimation errors in simulated cochlear implant speech intelligibility. In *International Symposium on Auditory and Audiological Research (ISAAR)*, Nyborg, Denmark, August 2017. [paper]

Thomas Bentsen, Tobias May, Abigail Anne Kressner, and Torsten Dau. Comparing the influence of spectro-temporal integration in computational speech segregation. In *Proceedings of Interspeech*, San Francisco, California, September 2016. [paper]

Abigail Anne Kressner and Christopher John Rozell. Speech understanding in noise provided by a simulated cochlear implant processor based on matching pursuit. In *Proceedings of the IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA)*, New Paltz, New York, October 2013. [paper]

Abigail Anne Kressner, David V. Anderson, and Christopher John Rozell. Causal binary mask estimation for speech enhancement using sparsity constraints. In *Proceedings of Meetings on Acoustics (POMA)*, Montreal, Canada, June

2013. [paper]

Abigail Anne Kressner, David V. Anderson, and Christopher John Rozell. A novel binary mask estimator based on sparse approximation. In Proceedings of the IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), Vancouver, Canada, May 2013. [paper]

Abigail Anne Kressner, David V. Anderson, and Christopher John Rozell. Robustness of the Hearing Aid Speech Quality Index (HASQI). In Proceedings of the IEEE Workshop on Applications of Signal Processing to Audio and Acoustics (WASPAA), New Paltz, New York, October 2011. [paper]

Adam S. Charles, Abigail Anne Kressner, and Christopher John Rozell. A Causal Locally Competitive Algorithm for the Sparse Decomposition of Audio Signals. In Proceedings of the IEEE Digital Signal Processing (DSP) Workshop, Sedona, Arizona, January 2011. [paper]

Conference abstracts

Mihaela-Beatrice Neagu, Torsten Dau, Abigail Anne Kressner, Helia Relaño Iborra, Per Bækgaard, and Dorothea Wendt. Investigating the reliability of pupillometry as an individualized measure of listening effort. In Association for Research in Otolaryngology (ARO), February 2021.

Rasmus Østergaard Bendsen, Abigail Anne Kressner, and Torsten Dau. Effect of linked and “spatially aware” cochlear-implant compression on spatial perception in a reverberant room. In Conference on Implantable Auditory Prostheses (CIAP), Lake Tahoe, California, July 2019.

Wiebke Lamping, Tobias Goehring, Abigail Anne Kressner, Jeremy Marozeau, and Robert P. Carlyon. A coding strategy to remove temporally masked pulses and its effect on speech perception by CI listeners. In Conference on Implantable Auditory Prostheses (CIAP), Lake Tahoe, California, July 2019.

Abigail Anne Kressner, Stefan J. Mauger, and Torsten Dau. Predicting the impact of noise and noise reduction algorithms on speech intelligibility in cochlear implant recipients. In 2017 Audiological Research Cores in Europe (ARCHES), Leuven, Belgium, November 2017.

Abigail Anne Kressner, Stefan J. Mauger, Adam A. Hersbach, and Torsten Dau. Multi-study evaluation of objective measures that predict cochlear implant speech intelligibility. In 2017 Conference on Implantable Auditory Prostheses (CIAP), Lake Tahoe, California, July 2017.

Abigail Anne Kressner, Adam Westermann, Jörg Matthias Buchholz, and Christopher John Rozell. Speech coding errors in cochlear implants and their impact on speech intelligibility in noise. In 2016 International Hearing Aid Research Conference (IHCON), Lake Tahoe, California, August 2016.

Thomas Bentsen, Tobias May, Abigail Anne Kressner, and Torsten Dau. The effect of spectro-temporal context on computational speech segregation. In 2015 Audiological Research Cores in Europe (ARCHES), Groningen, Netherlands, November 2015.

Abigail Anne Kressner and Christopher John Rozell. The influence of structure in binary mask estimation error on speech intelligibility. In 2014 International Hearing Aid Research Conference (IHCON), Lake Tahoe, California, August 2014.

Abigail Anne Kressner and Christopher John Rozell. Speech separation using Matching Pursuit for time-frequency masking. In Signal Processing with Adaptive Sparse Structured Representations (SPARS) Workshop, Lausanne, Switzerland, July 2013.

Abigail Anne Kressner, Adam S. Charles, and Christopher John Rozell. Causal Locally Competitive Algorithm for the sparse decomposition of audio signals. In IEEE Women’s Workshop on Communications and Signal Processing, Banff, Canada, July 2012.

Abigail Anne Kressner, David V. Anderson, and Christopher John Rozell. Computational auditory models validate the intelligibility benefit of efficient filters. In International Symposium on Auditory and Audiological Research (ISAAR) 2011, Nyborg, Denmark, August 2011.

Abigail Anne Kressner, Christopher John Rozell, and David V. Anderson. Predicting speech quality using a computational auditory model. In IHCON 2010 International Hearing Aid Research Conference, Lake Tahoe, California, August 2010.

Mads J. Jensen, Morten P. Linkenkaer, and Abigail Anne Kressner. Using FEM to estimate the influence of pinna when calculating hearing aid relevant transfer functions. In IHCON 2008 International Hearing Aid Research Conference, Lake Tahoe, California, August 2008.