Abigail Anne Kressner

Postdoctoral Researcher
Hearing Systems Group
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Education

2011-2015 Ph.D. · Electrical and Computer Engineering · Georgia Institute of Technology

Thesis: Structure in time-frequency binary masking
Advisor: Dr. Christopher John Rozell

2009-2011 M.S. · Electrical and Computer Engineering · Georgia Institute of Technology

Thesis: Auditory models for evaluating algorithms
Advisor: Dr. Christopher John Rozell

2008 Audiology · Vanderbilt University

2004-2007 B.S. · Biomedical Engineering · Washington University in St. Louis

Research support

2015-2017 Postdoctoral grant from Det Frie Forskningsråd (DFF; Danish Council for Independent Research)

2014-2015 National Science Foundation (NSF) Graduate Research Opportunities Worldwide (GROW)

2010-2015 National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP)

2010-2013 National Defense Science & Engineering Graduate (NDSEG) Fellowship

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

Research and work experience

Visiting Postdoctoral Researcher · Cochlear, Ltd · Melbourne, Australia · 01/2017 to 04/2017

- Investigated models for cochlear implant speech intelligibility prediction

Postdoctoral Researcher · Technical University of Denmark · Copenhagen, Denmark · 10/2015 to present

- Investigating speech in noise for cochlear implant recipients, both in the areas of speech intelligibility prediction and psychoacoustic experimentation

Visiting Scholar · National Acoustic Laboratories · Sydney, Australia · 6/2014 to 2/2015

- Investigated the influence of binary time-frequency gain manipulation errors in cochlear implant recipients

Consultant · United Sciences, LLC · Atlanta, Georgia, USA · 6/2013 to 3/2014

- Advised in the areas of acoustics and signal processing for new product development

Graduate Research Assistant · Georgia Institute of Technology · 8/2009 to 5/2015

- Evaluated the generalizability of the Hearing Aid Speech Quality Index (HASQI)
- Investigated the effect of statistical structure in the gains applied during noise reduction by conducting listener experiments with both normal-hearing listeners and cochlear implant recipients

Research Assistant · Vanderbilt University · Nashville, Tennessee, USA · 1/2009 to 7/2009

- Developed Graphical User Interface in Matlab for implementing principal component analysis on event-related potentials of speech process

Research Intern · Widex A/S · Værløse, Denmark · 1/2008 to 7/2008

- Investigated the influence of earmold venting on hearing aid feedback to facilitate better vent placement

Research Intern · Knowles Electronics, LLC · Itasca, Illinois, USA · 5/2007 to 8/2007

- Investigated the use of two directional microphones for sound source separation in the ear canal

Research Intern · AuSIM, Inc · Palo Alto, California, USA · 5/2006 to 8/2006

- Aided in the design of a field communication system that maintains 3D spatial relationships among users

National Science Foundation's Research Experiences for Undergraduates · Baltimore, Maryland, USA · 6/2005 to 8/2005

- Developed computational model of autoassociative neural network as part of the University of Maryland Baltimore County's Summer Program in Computational Biology

Research Assistant · Washington University in St. Louis · St Louis, Missouri, USA · 2/2005 to 5/2007

- Investigated the influence of auditory cues on self-orientation

Selected publications

Abigail Anne Kressner, Tobias May, and Torsten Dau. The effect of noise reduction gain errors on simulated cochlear implant speech intelligibility, Trends in Hearing, accepted.

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]

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]