
BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
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NAME Hornsby, Benjamin W.Y.		POSITION TITLE Associate Professor	
eRA COMMONS USER NAME (credential, e.g., agency login) hornsby			
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.</i>)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
Maryville College, Maryville, TN	B.A.	1985	Interpreting for Deaf
Vanderbilt University, Nashville, TN	M.S.	1995	Audiology
Vanderbilt University, Nashville, TN	Ph.D.	2002	Audiology

A. Personal Statement

See specific contributions below.

B. Positions and Honors

Positions and Employment

1995-1997	Clinical Audiologist, Vanderbilt Bill Wilkerson Center, Nashville, TN
1995-2001	Research Assistant, Hearing & Speech Sciences, Vanderbilt University School of Medicine, Nashville, TN
2001-2006	Research Assistant Professor, Hearing & Speech Sciences, Vanderbilt University School of Medicine, Nashville, TN
2006-2014	Assistant Professor, Hearing & Speech Sciences, Vanderbilt University School of Medicine, Nashville, TN
2014- present	Associate Professor, Hearing & Speech Sciences, Vanderbilt University School of Medicine, Nashville, TN

Other Experience and Professional Memberships

1993-	Member, American Speech Language-Hearing Association
1994-	Member, American Academy of Audiology
2002-	Member, American Auditory Society
2008-11	Member, AAA Research Committee
2009-11	Department of Veterans Affairs, Research & Development Rehabilitation Merit Reviewer
2010-11	Member, AAA Educational Grants Review Committee
2016	Reviewer ASHFoundation Student research grants in Audiology
2017	Reviewer NIH Auditory Neuroscience review panel
2005-08	Senior Editor, Trends in Amplification
2009-11	Guest Editor, Ear and Hearing
2012-2018	Section Editor, Amplification: Ear and Hearing

Honors

1995	Jay W. Sanders Honors in Audiology Award Vanderbilt University
2000	Biennial International Hearing Aid Conference student scholarship recipient
2002	American Auditory Society Mentored Student Research Award
2016	Awarded Fellow status in the American Speech Language and Hearing Association (ASHA)

C. Contribution to Science

1. Hearing Loss, Hearing Aids and Speech Understanding:

Much of my early work focused on understanding the factors responsible for the speech understanding difficulties of adults with hearing loss and the benefits and limitations of amplification for this group. It is well known that hearing loss negatively affects speech understanding. Over the years, researchers have identified important factors that contribute to these difficulties including reduced audibility, suprathreshold processing deficits and cognitive deficits associated with aging. However, the bulk of the research conducted has focused on the unaided listening condition. Our work has added to this literature by highlighting the impact of degree and configuration of hearing loss on the relative benefits, and limitations, of amplified speech information. An additional important area of focus has been the negative effects of high presentation levels, which are required for aided listeners with hearing loss, on speech understanding.

- a. Hornsby BW, Johnson EE, Picou E. Effects of degree and configuration of hearing loss on the contribution of high- and low-frequency speech information to bilateral speech understanding. *Ear Hear.* 2011 Sep-Oct;32(5):543-55. PubMed PMID: [21336138](#); PubMed Central PMCID: [PMC3113662](#).
- b. Hornsby BW, Ricketts TA. The effects of hearing loss on the contribution of high- and low-frequency speech information to speech understanding. II. Sloping hearing loss. *J Acoust Soc Am.* 2006 Mar;119(3):1752-63. PubMed PMID: [16583917](#); PubMed Central PMCID: [PMC2735822](#).
- c. Hornsby BW, Trine TD, Ohde RN. The effects of high presentation levels on consonant feature transmission. *J Acoust Soc Am.* 2005 Sep;118(3 Pt 1):1719-29. PubMed PMID: [16240830](#).
- d. Hornsby BW, Ricketts TA. The effects of compression ratio, signal-to-noise ratio, and level on speech recognition in normal-hearing listeners. *J Acoust Soc Am.* 2001 Jun;109(6):2964-73. PubMed PMID: [11425138](#).

2. Hearing Loss, Mental Effort and Fatigue:

My more recent work has focused on the psychosocial consequences of poor speech understanding in adults and children with hearing loss. This translational work from our laboratory is some of the first to explore fatigue as a consequence of effortful listening in adults and children with hearing loss. We are expanding our work in this area to include individuals with multiple disabilities and other communication disorders such as specific language impairment. Our work has been instrumental in identifying this potentially significant consequence of hearing loss. Current work seeks to develop methods to assess listening-related fatigue in these groups and better understand the factors that modulate its impact.

- a. Hornsby, B., Gustafson, S., Lancaster, H., Cho, S.-J. Camarata, S., & Bess, F.H. (2017). Subjective Fatigue in Children with Hearing Loss Using Self- and Parent- Proxy Reports. *American Journal of Audiology.*26(3S), 393-407. PubMed PMID: [29049623](#).
- b. Hornsby BW, Kipp AM. Subjective Ratings of Fatigue and Vigor in Adults With Hearing Loss Are Driven by Perceived Hearing Difficulties Not Degree of Hearing Loss. *Ear Hear.* 2016 Jan-Feb;37(1):e1-e10. PubMed PMID: [26295606](#).
- c. Bess FH, Gustafson SJ, Corbett BA, Lambert EW, Camarata SM, Hornsby BW. Salivary Cortisol Profiles of Children with Hearing Loss. *Ear Hear.* 2015 Dec 17;PubMed PMID: [26684396](#).
- d. Hornsby BW. The effects of hearing aid use on listening effort and mental fatigue associated with sustained speech processing demands. *Ear Hear.* 2013 Sep;34(5):523-34. PubMed PMID: [23426091](#).

My Bibliography:

<https://www.ncbi.nlm.nih.gov/myncbi/benjamin.hornsby.1/bibliography/public/>

D. Research Support

R32A150029, Institute for Education Sciences (Bess, PI)

07/15/15-06/30/19

Measurement of Listening Fatigue in School-Age Children with Disabilities

The purpose of this study is to conceptualize, construct and validate an assessment tool of listening-related fatigue appropriate for use with children with hearing loss and other communication-based disabilities.

Role: Co-Investigator

Completed Research Support

R21 DC012865-02, NIH (Hornsby, PI)

08/01/13-07/31/16

Quantifying the "Fatigue Factor": Hearing Loss, Speech Processing and Fatigue

The purpose of this study is to 1) identify optimal test conditions to objectively quantify mental fatigue resulting from speech understanding difficulties and 2) define relationships between degree of hearing loss and mental fatigue. The outcomes of this research will guide efforts towards identifying at risk individuals and evaluating interventions to reduce these significant negative effects.

Role: Principal Investigator

NA, Starkey, Inc Hornsby (PI)

08/01/14-10/31/16

Development of a Listening-Related Fatigue Scale for Adult Hearing Aid Candidates and Users

The purpose of this study is to develop a valid, sensitive and reliable, measurement scale to assess listening-related fatigue for adult hearing aid candidates and users.

Role: Principal Investigator

R324A110266, Institute for Education Sciences (IES)

07/01/11-06/30/16 (Bess, PI)

Listening Effort and Fatigue in School Age Children with Hearing Loss

The goal of this project is to examine whether school-age children with hearing loss (CHL) expend greater listening effort and subsequently experience more fatigue under noisy conditions than a group of children with no hearing loss (CNHL).

Role: Co-Investigator

NA, ASHFoundation (Hornsby, PI)

11/01/12-11/01/13

Fatigue and Listening: Quantifying the Relationship between Speech Processing and Mental Fatigue.

The purpose of this study is to identify optimal test conditions to quantify mental fatigue resulting from speech understanding difficulties in adults with normal hearing. The outcomes of this research will guide development of test protocols to examine speech processing related fatigue in adults and children with hearing loss.

Role: Principal Investigator

NA, Oticon, Inc (Hornsby, PI)

05/01/13-06/30/13

A Taxonomy of fatigue: Relations to hearing loss

The purpose of this project is to review the existing fatigue literature summarize its relevance to fatigue in persons with hearing loss.

Role: Principal Investigator

NA, Siemens, Inc (Hornsby, PI)

07/01/13-06/30/14

A comparison of subjective preference for Siemens Micon first fit and NAL-NL2 prescriptive fitting algorithms. The purpose of this research was to evaluate the effectiveness of a proprietary hearing aid fitting algorithm in relation to a generic version in terms of sound quality and preference.

Role: Principal Investigator

5R01EY012894-10, NIH/EY (Ashmead, Co-PI)

07/01/07-06/30/13

Blind Pedestrians' Access to Complex Intersections

The purpose of this study is to lead and coordinate studies of sound localization, auditory motion perception, and "virtual reality" simulation of road crossing.

Role: Investigator

N/A, Starkey, Inc (Hornsby, PI)

11/01/12-05/01/13

Hearing loss, hearing aids and mental fatigue

The goal of this project is to quantify mental fatigue associated with sustained speech processing in elderly persons with hearing loss, with and without hearing aids, using both subjective and objective measures.

Role: Principal Investigator