Brian Gygi curriculum vitae

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### Research Summary

My research to date has dealt with the sensory and cognitive aspects of auditory perception. Thus my research topics have included largely acoustic phenomena (the spectral-temporal factors that enable identification of environmental sounds) some more central or cognitive factors (selective and divided attention in perceiving concurrent multi talker speech) and the interactions between the two (the identifiability of sounds in natural-occurring auditory scenes, which depends on both semantic and acoustic variables). Since I am interested in how humans function in real-world situations, I have tried to base my research on naturalistic stimuli. I worked quite extensively with familiar, naturally occurring sounds, which I term environmental sounds. I have also worked with naturalistic speech materials such as the Coordinate Response Measure corpus in conditions approximating real-world listening situations. I have extended the knowledge gained from these efforts in auditory rehabilitation, through which I am involved with Dr. Valeriy Shafiro in developing an online auditory rehabilitation prgoram. I am experienced with both quantitative (experimental) and qualitative (applied) research methodologies

**Professional Experience**:

*5/2012 – 3/2014* Senior Research Fellow, National Institute for Health Research, National Biomedical Research Unit in Hearing, Nottingham, UK. Developed a Research program on Effects of Background Sounds on Hearing Aid Users. Designed studies, ensured compliance with regulatory bodies, handled study logistics, analyzed data and wrote up findings for publication.

*9/2011 – 3/2012* Auditory Cognitive Neuroscience Mobility Fellow, Laboratory of Perception and Psychology, *École Normale Supérieure*, Paris, France. Conducted Research into semantic and contextual factors in the perception of sequences of environmental sounds.

*10/2008 – 7/2012* Associate Director, Speech and Hearing Research Laboratory, Veterans Affairs Northern California Health Care System, Martinez, CA. Responsible for all aspects of laboratory management, such as budgeting, personnel, experiment design, subject recruiting, compliance documentation, and equipment.

*7/2007 – present* Health Research Specialist, Veterans Affairs Northern California Health Care System (VANCHCS), Martinez, CA. Funded under Veterans Administration Merit Review Entry Program (MREP) Award 06-12-00446 “Contextual factors in environmental sound perception among the elderly.” Tested the ability of elderly listeners to use situational information from everyday listening situations to identify variety of salient environmental sounds. Currently, due to lack of external funding, I am a WOC (Without Compensation) employee of the VANCHCS.

*9/2006 – 7/2007* Research Associate, East Bay Institute for Research & Education, Martinez, CA. Conducted studies in the Speech and Hearing Research Laboratory investigating the ability of elderly to attend to concurrent multi-talker speech both selectively and in a divided manner.

*4/2005– 8/2006* Postdoctoral Researcher, Acoustic Research Institute, Vienna, Austria. Funded under an Austrian Research Promotion Agency (FFG) Development Grant. Developed automatic signal processing routines to classify and evaluate train noises for annoyance levels.

*3/2002– 3/2005* Postgraduate Fellow, East Bay Institute for Research & Education, Martinez, CA. Funded by the National Institute of Health – NIA AG RO1-07998, researched cognitive factors affecting environmental sound identification, such as typicality and similarity to other environmental sounds.

*5/1995– 8/2001* Research Assistant, Hearing and Communication Laboratory, Indiana University. Assisted in development of the Test of Basic Auditory Capabilities (TBAC), revised version. Designed the experiment, generated stimuli, recruited and ran subjects and analyzed data. In addition, was a programmer and tester for the Benton County School District/Indiana University Assessment Project and a programmer, for the Hearing Aid Performance Inventory (HAPI), both in Foxpro.

**Representative Publications:**

Gygi B. & Hall, D. (2015). The Effect of Background Sounds on Hearing Aids Users: a Scoping Study. International Journal of Audiology. Early Online, Sept. 2015.

Gygi, B., Giordano, B., Shafiro, V., Kharkhurin, A., Zhang, P. (2015). Predicting the temporal dynamics of bouncing events through sound. The Journal of the Acoustical Society of America, 138(1), 457-66.

Gygi B. & Shafiro, V. (2014). Spatial and Temporal Modifications of Multitalker Speech Can Improve Speech Perception in Older Adults. Hearing Research 310: 76-86.

Gygi B. & Shafiro, V. (2013). Auditory and Cognitive Effects of Aging on Perception of Environmental Sounds in Natural Auditory Scenes. Journal of Speech, Hearing and Language Research. 56, 1373–1388.

Gygi, B. & Shafiro, V. (2012). Spatial and Temporal Factors in a Multitalker Dual Listening Task. Acta Acustica united with Acustica 98(1), 142-157.

Gygi, B. & Shafiro, V. (2011). The incongruency advantage for environmental sounds presented in natural auditory scenes. Journal of Experimental Psychology Human Perception and Performance 37(2), 551-65.

Gygi, B., Kidd, G.R. & Watson, C.S. (2007). Similarity and categorization of environmental sounds. Perception and Psychophysics, 69(6), 839-855.

Gygi, B. & Shafiro, V., (2007). General functions and specific applications of environmental sound research. Frontiers in Bioscience 12, 3167-3176

Kidd, G.R., Watson, C.S. and Gygi, B. (2007). Individual differences in auditory abilities. The Journal of the Acoustical Society of America 122(1), 418-435

Gygi, B., Kidd, G.R. & Watson, C.S. (2004). Spectral-temporal factors in the identification of environmental sounds. The Journal of the Acoustical Society of America, 155 (3),1252–1265.

**Academic History:**

B.A. 1981, Columbia University, New York, NY Major: English

Ph.D. 2001, Indiana University, Sensory Psychology and Cognitive Science

### Technical Expertise

**Skills** Signal processing, computer programming, experimental design, data analysis and statistics, audiometric testing, sound equipment calibration, strong written and oral communication skills.

**Languages** Excel, R, SQL, Matlab, Visual Basic, Visual Foxpro, Praat scripting language, C, C++, BASIC, FORTRAN, HTML, basic PHP and Javascript.