jdb@jboley.com

**Jon Boley, Ph.D.**

phone: +1-312-231-4007

**Auditory Research Scientist**

***Extensive Experience LEADING HIGHLY SUCCESSFUL CROSS-FUNCTIONAL TEAMS***

* Highly experienced research scientist & program manager; led numerous successful R&D projects for GN ReSound, LSB Audio, and Shure Incorporated.
* Expertise in psychoacoustics and signal processing with superb communication, interpersonal and leadership skills.
* Excellent ability to prioritize and manage multiple, complex projects simultaneously while ensuring delivery on time and within budget.

***Auditory Perception:*** Psychoacoustic & neural models of loudness, masking, scene analysis, etc; extensive knowledge of the latest research on localization, pitch, speech perception and hearing impairment.

***Psychophysics:*** Numerous experimental methods and statistical analyses.

***DSP Algorithms:*** Filter design, adaptive filters, compression, spatialization, coding, watermarking, echo cancellation, noise suppression, feedback reduction, automatic mixing, speech enhancement, etc.

**PROFESSIONAL EXPERIENCE**

|  |  |
| --- | --- |
| **Research Scientist & Program Manager, GN ReSound**, Glenview, IL | 2011-Present |

Program Manager (2014 – Present)

Coordinate & communicate activities for a research program with multiple concurrent projects.

* Lead a team of scientists & engineers to research scientific questions and develop new technologies from concept through feasibility to proof-of-concept.
* Create research strategy, approve project proposals, coordinate project tasks, communicate program status, maintain budgets, coordinate resource needs, and facilitate technology transfer.

Research Scientist (2011 – Present)

Quantify research problems, design hypothesis-driven tests for new designs, and invent novel solutions to improve performance.

* Design, conduct, and analyze psychophysical & electroacoustic experiments. Position experiments to be included early and often in the iterative technology design process.
* Developed a software package for conducting behavioral experiments. Utilized software engineering best practices (e.g., version control, test-driven development, continuous integration, release management, etc).

|  |  |
| --- | --- |
| **Principal Consultant, LSB Audio LLC**, Lafayette, IN | 2007-2011 |

Provided technical consulting and project management on numerous projects involving audio quality assessment, algorithm development, embedded firmware coding, and optimization.

* Hired, managed, and collaborated with global teams to develop several mobile applications on tight schedules. Personally created numerous audio processing algorithms for both medical and entertainment industries.
* Developed several Matlab/Simulink models to prototype ideas and test algorithms. Applications included a new feedback reduction algorithm, a low-cost hearing aid architecture (floating & fixed point), and psychoacoustic models.

|  |  |
| --- | --- |
| **Senior Engineer, Shure Incorporated,** Niles, IL | 2003-2007 |

Developed embedded software/firmware and invented new signal processing technologies to significantly improve the sound quality of professional-grade audio devices. Conducted listening tests as a psychoacoustics expert and worked on highly advanced R&D projects to enhance live sound in business/public settings.

* Designed multiple digital microphone prototypes; led the development of digital signal processing for these products; created the firmware interfaces for analog/digital converters, memory, and various other digital circuits.
* Developed computer models of several innovative audio processing technologies and successfully implemented them in hardware prototypes.

|  |  |
| --- | --- |
| **Engineering Intern, Motorola Inc,** Schaumburg, IL | 2000-2002 |

Designed audio systems for OnStar, developed a novel speech detection algorithm, and designed software for real-time tuning of echo cancellation and noise suppression technologies.

**EDUCATION & PROFESSIONAL DEVELOPMENT**

**Ph.D. Biomedical Engineering** Purdue University, West Lafayette, IN 2013

**M.S. Music Engineering** University Of Miami, Coral Gables, FL 2005

**B.S. Electrical Engineering** University Of Illinois at Urbana-Champaign 2003

**Certificate, Electronic Equipment Repair** Lake County Area Vocational Center, Grayslake, IL 1998

***Certifications:*** **Project Management Professional (PMP),** 2010 - Present

**SELECTED PATENTS / PUBLICATIONS / PRESENTATIONS**

Humphrey, E.J., S.K. Rits, J. Boley, O. Masciarotte. "*Detection System and Method for Mobile Device Application*." U.S. Patent 08713593, issued April 2014.

Boley, J. “*Effects of Hearing Aid Amplification on Robust Neural Coding of Speech*,” PhD Dissertation. Purdue University, December 2013.

Boley, J. “*Toward a Perceptually Relevant Measure of the Occlusion Effect*,” International Hearing Aid Research Conference, August 2012.

Boley, J. and M. Heinz, “*Impaired Spatiotemporal Coding of Vowels in Noise*,” International Hearing Aid Research Conference, August 2012.

Boley, J., C. Danner, and M. Lester, “*Measuring Dynamics: Comparing and Contrasting Algorithms for the Computation of Dynamic Range*,” in Proceedings of the 129th Convention of the Audio Engineering Society, November 2010.

Boley, J. and M. Heinz, “*Predicted Effects of Amplification on Spatiotemporal Coding of Vowels in Noise*,” International Hearing Aid Research Conference, August 2010.

Gaston, L., J. Boley, S. Selter, and J. Ratterman, “*The Influence of Individual Audio Impairments on Perceived Video Quality*,” in Proceedings of the 128th Convention of the Audio Engineering Society, May 2010.

Heinz, M., J. Swaminathan, J. Boley, and S. Kale, “*Across-Fiber Coding of Temporal Fine-Structure: Effects of Noise-Induced Hearing Loss on Auditory Nerve Responses,”* in The Neurophysiological Bases of Auditory Perception. Springer (New York), March 2010.

Kale, S., J. Boley, J. Swaminathan, M. Heinz, *“Within and across fiber temporal fine structure coding following noise induced hearing loss,”* 33rd Midwinter Meeting of the Association for Research in Otolaryngology, February 2010.

Boley, J. and M. Lester, “*Statistical Analysis of ABX Results Using Signal Detection Theory*,” in Proceedings of the 127th Convention of the Audio Engineering Society, October 2009.

Boley, J. and M. Heinz, *“Quantifying the Effects of Hearing Aid Dynamics on Temporal Coding in the Auditory Nerve,”* First International Symposium on Audible Acoustics in Medicine and Physiology, September 2008.

Lester, M. and J. Boley, “*The Effects of Latency on Live Sound Monitoring*,” in Proceedings of the 123rd Convention of the Audio Engineering Society, October 2007.

Boley, J. “*Auditory Component Analysis*,” in Proceedings of the 121st Convention of the Audio Engineering Society, October 2006.

**PROFESSIONAL MEMBERSHIPS & ACTIVITIES**

* Audio Engineering Society, Member, 2001-Present

*Technical Committees:* Perception and Subjective Evaluation, Signal Processing, Audio Coding

*Leadership Roles:* Chair & Treasurer of local sections; Chair/Panelist/Reviewer for several conferences

* IEEE Signal Processing Society, Member, 1998-Present (Senior Member since 2014)
* Acoustical Society of America, Member, 2001-Present
* Motion Picture Experts Group (MPEG), Member, 2003-2005
* Scientific & technical reviewer for various journals, including:  
  *IEEE Transactions on Audio, Speech and Language Processing  
  Journal of the Audio Engineering Society  
  Ear & Hearing*