

# BRETT LEONARD, PH.D.

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## EDUCATION

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2008 – 2015 McGill University Montréal, QC

### **Ph.D in Music, Sound Recording**

- Thesis: *Listening Through the Room: The influence of acoustic environment on task-oriented critical listeners*
- Focus on research in the areas of applied/task-based listening testing, room acoustics and virtual acoustics as related to sound recording
- Further development of advanced classical and acoustic music production techniques

2006 - 2008 New York University New York, NY

### **Master's of Music in Music Technology**

*(with the Tonmeister Honors Sequence)*

- Focus on digital signal theory, advanced production techniques and psychoacoustics research

2002 - 2006 California Lutheran University Thousand Oaks, CA

### **Bachelor of Arts in Music**

- Focus on general recording and production techniques
- Emphasis on performing and developing musicianship skills

Summer 2005 Aspen Music Festival & School Aspen, CO

- Intensive study of modern classical music recording techniques

## WORK EXPERIENCE

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2014 - present University of Nebraska at Omaha Omaha, NE

### **Assistant Professor, Music Technology area coordinator**

- Tenure track, teaching-focused position responsible for curriculum and program development for a growing, multi-faceted music technology area
- Course development of MUS 1010 (Music Technology Seminar, including technical ear training), MUS 3170-001 (Intro. to Music Technology for music technology majors), MUS 4220 (mixing & mastering)
- Enhance and improve technology infrastructure and out-of-class opportunities for music technology students

2013 - present Chelsea Music Festival New York, NY & Taipei, Taiwan

**Lead Audio Engineer**

- Oversee a team of engineers and interns to provide high-quality but visually unobtrusive location recording for all performances across the festival's numerous non-traditional venues
- Provide sound reinforcement for the festival's increasingly frequent outdoor, jazz, and electronic music concerts
- Institute an archiving system to facilitate future album releases, as well as historical documentation of all concerts

2004 - present BLPAudio international

**Owner, Freelance Recording Engineer & Audio Consultant**

- Consulting and system design for performance spaces, churches, recording studios, museums, and businesses
- Recording, editing and mixing services, extending from classical music to pop, rock and jazz, radio broadcasts and film sound
- Projects working with Grammy-award winning artists & producers, major label artists, and large-scale radio broadcasting

2013 - 2014 McGill University, Sound Recording Area Montréal, QC

**Lecturer – MUSR 200 “Audio Recording Essentials”**

- Design & implement curriculum for a one semester course covering basic topics on the physics of sound, transducers, room acoustics, sound reinforcement and recording history
- Deliver engaging lectures to a large, diverse undergraduate class of varying backgrounds and experience levels

2011 - 2014 McGill University, Sound Recording Area Montréal, QC

**Lecturer – MUSR 300D1/2 “Introduction to Music Recording”**

- Teach an intense 1-year overview course on basic thru advanced stereo recording, editing and mixing techniques, primarily in the area of acoustic music
- Help students hone critical listening skills, develop a recording aesthetic and teach the fundamentals of serving as producer on classical music productions

2009 - 2014 McGill University, Sound Recording Area Montréal, QC

**Lecturer – MUSR 339 “Introduction to Electroacoustics”**

- Deliver lectures on acoustic and electrical principles as applied to recording technology and audio equipment
- Teach and supervise methods of measuring salient features of rooms and recording equipment

2009 - 2013 Recording Arts Canada Montréal, QC

**Lecturer – ElectroTech, Audio Consoles & Acoustics**

- Develop curriculum to further the education of tomorrow's audio professionals.
- Deliver lectures on electrical theory and magnetism, electrical



Philip Gosselin – Silver Award (Cat. 3) of the Student Recording Competition at 135<sup>th</sup> Convention of the Audio Eng. Soc. (New York, 2013)

Pouya Hamidi – Silver Award (Ca. 2) of the Student Recording Competition at 133<sup>rd</sup> Convention of the Audio Eng. Soc. (San Francisco, 2012)

#### AWARDS

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2015/16 College of Communication, Fine Arts & Media Cultural Enhancement Award – funding for the “Music & Technology Lecture Series” to bring guest speakers in audio-related fields to campus

2014 University Committee for the Advancement of Teaching travel grant – University of Nebraska at Omaha.

2013 Teaching Award: Graduate Instructor of the Year – Schulich School of Music – McGill University.

2013 Centre for Interdisciplinary Research for Music, Media & Technology Student Travel Grant – McGill University

2012 Graduate Research Enhancement & Travel Award – McGill University

2011/12 Centre for Interdisciplinary Research for Music, Media & Technology Student Research Grant – McGill University

2011/12 Graduate Excellence Award – McGill University

2011 Centre for Interdisciplinary Research for Music, Media & Technology Student Travel Grant – McGill University

2011 Graduate Research Enhancement & Travel Award – McGill University

2011/12 Centre for Interdisciplinary Research for Music, Media & Technology Student Research Grant – McGill University

2010-2011 Schulich Scholarship – McGill University

2010 Centre for Interdisciplinary Research for Music, Media & Technology Student Travel Grant – McGill University

2010 Graduate Research Enhancement & Travel Award – McGill University

2009/10 Centre for Interdisciplinary Research for Music, Media & Technology Student Research Grant – McGill University

2008-2010 Schulich Scholarship – McGill University

2009/10 Audio Engineering Society Educational Foundation grant  
2008/09 Audio Engineering Society Educational Foundation grant  
2007/08 Music Technology Graduate Student of the Year – New York University  
2006 Senior Award: Best Musician – California Lutheran University  
2002-2006 Presidential Scholarship – California Lutheran University  
2002-2006 American Lutheran Church of Sun City Scholarship

#### SKILLS

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Curriculum & course development  
Expertise in standard digital audio workstations (Pro Tools, Pyramix, etc.)  
Advanced listening test design & implementation  
Acoustic & electrical measurement systems & methodology  
Studio construction, project management and system design  
Matlab, HTML/CSS & Max MSP proficient  
Audio processing GUI design  
Acoustic enhancement and public address system design  
Equipment design, repair and troubleshooting

#### PROFESSIONAL MEMBERSHIPS

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Acoustical Society of America – associate member  
Audio Engineering Society – full member  
National Academy of Recording Arts & Sciences – voting member  
Society for Music Perception & Cognition – member

#### PROFESSIONAL SERVICE

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141<sup>st</sup> Convention of the Audio Engineering Society in Los Angeles (October 2016), convention committee – papers co-chair  
139<sup>th</sup> Convention of the Audio Engineering Society in New York (2015), convention committee – papers co-chair  
59<sup>th</sup> International Conference of the Audio Engineering Society in Montréal (2015), conference committee – papers co-chair

International Programme Committee – The Innovation in Music conference 2015

137<sup>th</sup> Convention of the Audio Engineering Society in Los Angeles (2014), convention committee – papers co-chair

136<sup>th</sup> Convention of the Audio Engineering Society in Berlin (2014), convention committee – papers co-chair

135<sup>th</sup> Convention of the Audio Engineering Society in New York (2013), convention committee – papers co-chair

Education Committee member – Audio Engineering Society

Peer reviewer, *Archive of Acoustics*

Peer reviewer, *International Community for Auditory Display*

Peer reviewer, *Audio Engineering Society conferences/conventions*

Session chair – 134<sup>th</sup> Conventions of the Audio Engineering Society in Rome, Italy (2013)

Session chair – 131<sup>st</sup> Conventions of the Audio Engineering Society in New York (2011)

#### ACADEMIC SERVICE

2015/16 – Chair, University Committee for the Award for Distinguished Research or Creative Activity

2015/16 – Assistant director, The Herd drum line – small marching percussion ensemble formed to play before hockey and basketball events, rallying fans to the event; the ensemble has since been featured on local TV broadcasts, in university-wide media, and in large-scale athletic events

2015/16 – Faculty search committee – Tenure-track professor in music theory & composition

2015/16 – College of Communications, Fine Arts, and Media Technology Fee committee

2014-present – sound reinforcement for high-profile guest artists including Grammy-award winning percussionist Glen Velez, Karrin Allyson, Terry Bozzio, Ralph Lalama, Harry Watters, and others, as well as large public performances by school of music ensembles

2014 - 2016 – Faculty advisor, student section of the Audio Engineering Society (national association affiliation pending)

2014/15 – University Committee for the Award for Distinguished Research or Creative Activity

2014/15 – College of Communications, Fine Arts, and Media Technology  
Fee committee

2014/15 – Facilitator, ad hoc Committee on Music Capstone Projects

## PUBLICATIONS

.∴ = full peer-reviewed

\* = presenting author

† = invited paper

**Leonard, B.** “Applications of Extended Multi-Channel Techniques,” In A. Roginska & P. Geluso (Eds.), *Immersive Sound* (1st ed.). London: Focal Press (in editing; anticipated 2016 release).

\* **Leonard, B.** “The Downsampling Dilemma: psychoacoustic issues in sample rate reduction,” *Proc. of the 124<sup>th</sup> Audio Eng. Soc. Convention*, Amsterdam, May 17-21, 2008.

\* **Leonard, B.**, King, R. and G. Sikora. “The Effect of Acoustical Environment on Reverberation Level Preference,” *Proc. of the 133<sup>rd</sup> Audio Eng. Soc. Convention*, San Francisco, Oct. 26-29, 2012.

\* **Leonard, B.**, King, R. and G. Sikora. “The Effect of Playback System on Reverberation Level Preference,” *Proc. of the 134<sup>th</sup> Audio Eng. Soc. Convention*, Rome, May 4-7, 2013.

\* **Leonard, B.**, King, R. and G. Sikora. “The Influence of Acoustic Environment on Music Perception in the Recording Studio,” *Proc. of the 2015 meeting of the Society for Music Perception and Cognition*, Nashville, Aug. 1-5, 2015.

\*† **Leonard, B.**, and S. Shinbara. “A study of variance of spectral content and sound radiation in timpani player” *Proc. of the 170<sup>th</sup> Meeting of the Acoustical Soc. of Am.*, Jacksonville, Nov. 2-5, 2015.

\* **Leonard, B.**, Sikora, G., and M. de Francisco. “The Instrument & the Room: A study of the grand piano focused on the needs of audio education”, *J. of the Acoustical Soc. of Am.*, vol. 130, 2399 (2011). (from the proc. of the 162<sup>nd</sup> meeting of the Acoustical Soc. of Am., San Diego, Oct. 2011)

\*† **Leonard, B.**, King, R. and G. Sikora. “Interaction Between Critical Listening Environment Acoustics and Listener Reverberation Preference,” *Proc. of the 2013 Int. Congress on Acoustics*, Montréal, June 2-7, 2013.

\* **Leonard, B.**, Levine, S. and P. Buttner-Schnirer. “Objective and Subjective Evaluations of Digital Audio Workstation Summing,” *Proc. of the 133<sup>rd</sup> Audio Eng. Soc. Convention*, San Francisco, Oct. 26-29, 2012.

\* **Leonard, B.** and P. Buttner-Schnirer. “Subjective Differences in Digital Audio Workstation Math,” *Proc. of the 132<sup>nd</sup> Audio Eng. Soc. Convention: eBref*, Budapest, April 27-30, 2012.

\* **Leonard, B.**, Sikora, G. and M. de Francisco. “In Situ Measurements of the Concert Grand Piano,” *Proc. of the 131<sup>st</sup> Audio Eng. Soc. Convention*, New York, Oct. 20-23, 2011.

\* Ahmad, J. J., Alberti, C., Hong, J., **Leonard, B.**, Mattavelli, M., Par, C., Quackenbush, S. and W. Woszczyk. “ECMA-407: New Approaches to 3D Audio Content Data Rate Reduction with RVC-CAL,” *Proc. of the 137<sup>th</sup> Audio Eng. Soc. Convention*, Los Angeles, Oct. 9-12, 2014.

De Man, B., Boerum, M., **Leonard, B.**, King, R., Massenburg, G. and J. Reiss. “Perceptual Evaluation of Music Mixing Practices”, *Proc. of the 138<sup>th</sup> Audio Eng. Soc. Convention*, Warsaw, May 7-10, 2015.

De Man, B., **Leonard, B.**, King, R., and J. Reiss. “An Analysis And Evaluation Of Audio Features For Multitrack Music Mixtures”, *Proc. of the 15<sup>th</sup> Int. Soc. for Music Information Retrieval Conference*, Taipei, Oct. 27-31, 2014.

Karampournotis, A., Kim, S., Ko, D., King, R., and **B. Leonard**. “Significance of height loudspeaker positioning for perceived immersive sound field reproduction”, *J. Acoustical Soc. Am.* vol. 135, 2282. (from the proc. of the 167<sup>th</sup> meeting of the Acoustical Soc. of Am., Providence, May 2014).

King, R., **Leonard, B.** and G. Sikora. “Consistency of Balance Preferences in Three Musical Genres,” *Proc. of the 133<sup>rd</sup> Audio Eng. Soc. Convention*, San Francisco, Oct. 26-29, 2012.

King, R., **Leonard, B.**, Bremner, S., and G. Sikora. “Consistency of High Frequency Preferences Among Expert Listeners,” *Proc. of the 136<sup>th</sup> Audio Eng. Soc. Convention*, Berlin, Apr. 26-29, 2014.

King, R., **Leonard, B.**, Bremner, S., and G. Sikora. “Adaptation and Varying Acoustical Condition and the Resulting Effect on Consistency of High Frequency Preference,” *Proc. of the 138<sup>th</sup> Audio Eng. Soc. Convention*, Warsaw, May 7-10, 2015.

\* King, R., **Leonard, B.** and G. Sikora. “The Effects of Monitoring Systems on Balance Preference: A comparative study of mixing on headphones versus loudspeakers,” *Proc. of the 131<sup>st</sup> Audio Eng. Soc. Convention*, New York, Oct. 20-23, 2011.

King, R., **Leonard, B.** and G. Sikora. “Loudspeakers and Headphones: The effects of playback systems on listening test subject,” *Proc. of the 2013 Int. Congress on Acoustics*, Montréal, June 2-7, 2013.

∴ King, R., **Leonard, B.** and G. Sikora. “The Practical Effects of Lateral Energy in Critical Listening Environments,” *J. of the Audio Eng. Soc.*, vol. 60 no. 12, pp 997-1003, (2012 December).

King, R., **Leonard, B.** and G. Sikora. “The Practical Effects of Lateral Energy in Critical Listening Environments,” *Proc. of the 131<sup>st</sup> Audio Eng. Soc. Convention*, New York, Oct. 20-23, 2011.



King, R., **Leonard, B.**, Bremner, S., and G. Sikora. “The Role of Acoustic Condition on High Frequency Preferences,” *Proc. of the 137<sup>th</sup> Audio Eng. Soc. Convention*, Los Angeles, Oct. 9-12, 2014.

\* King, R., **Leonard, B.** and G. Sikora. “Variance in Level Preference of Balance Engineers: a study of mixing preference and variance over time,” *Proc. of the 129<sup>th</sup> Audio Eng. Soc. Convention*, San Francisco, Nov. 4-7, 2010.

King, R., Levitin, D. and **B. Leonard.** “How Can Sample Rates be Properly Compared in Terms of Audio Quality?” *Proc. of the 133<sup>rd</sup> Audio Eng. Soc. Convention: eBrief*, San Francisco, Oct. 26-29, 2012.

King, R., **Leonard, B.**, Levine, S. and G. Sikora. “Balance Preference Testing Utilizing a System of Variable Acoustic Condition,” *Proc. of the 134<sup>th</sup> Audio Eng. Soc. Convention*, Rome, May 4-7, 2013.

King, R., **Leonard, B.**, Levine, S. and G. Sikora. “Listener Adaptation in the Control Room: The effects of varying acoustics on listener familiarization,” *Proc. of the 135<sup>th</sup> Audio Eng. Soc. Convention*, New York, Oct. 17-20, 2013.

\* Levine, S., **Leonard, B.** and R. King. “Binaural Room Simulation for Acoustic Testing,” *Proc. of the 134<sup>th</sup> Audio Eng. Soc. Convention: eBrief*, Rome, May 4-7, 2013.

Levine, S., **Leonard, B.** and R. King. “Design and Construction of the Tri-Baffle: A Modular Acoustic Modification System for Task-Based Mixing Experiments,” *Proc. of the 133<sup>rd</sup> Audio Eng. Soc. Convention: eBrief*, San Francisco, Oct. 26-29, 2012.

Martin, B., King, R., **Leonard, B.**, Benson, D., and W. Howie. “Immersive Content in Three Dimensional Recording Techniques for Single Instruments in Popular Music,” *Proc. of the 138<sup>th</sup> Audio Eng. Soc. Convention*, Warsaw, May 7-10, 2015.

\* Sikora, G., **Leonard, B.**, de Francisco, M. and D. Eck. “Space Sampling: a novel method for acoustic mapping of the concert grand piano,” *Proc. of the 128<sup>th</sup> Audio Eng. Soc. Convention*, London, May 22-25, 2010.

† Woszczyk, W., Ko, D., and **B. Leonard.** “Convolution-based virtual concert hall acoustics using aural segmentation and selection of multichannel impulse responses,” *Proc. of INTER-noise 2009*, Ottawa, Aug. 23-26, 2009.

Woszczyk, W., Ko, D., and **B. Leonard.** “A Convolution-Based System for Virtual Acoustic Support of Performing Musicians,” *Proc. of the 129<sup>th</sup> Audio Eng. Soc. Convention*, San Francisco, Nov. 4-7, 2010.

∴ Woszczyk, W., Ko, D., Benson, D. and **B. Leonard.** “The Effect Of Processing Two Overhead Channels On The Spatial Impression Of Virtual Rooms Rendered In Eight-channel Surround Sound,” *Proc. of the 40<sup>th</sup> Audio Eng. Soc. Conference on Spatial Audio*, Tokyo, Oct. 8-10, 2010.

\* Woszczyk, W., **Leonard, B.** and D. Ko. "Evaluation of Late Reverberant Fields in Loudspeaker Rendered Virtual Rooms," *Proc. of the 128<sup>th</sup> Audio Eng. Soc. Convention*, London, May 22-25, 2010.

Woszczyk, W., Ko, D., **Leonard, B.**, and D. Benson. "Selection And Preparation Of Multichannel Room Impulse Responses For Interactive Low-Latency Rendering Of Virtual Rooms," *Proc. of The Sixteenth International Congress on Sound and Vibration*, Kraków, July 5-9, 2009.

\*.: Woszczyk, W., **Leonard, B.** and D. Ko. "Space Builder: an impulse response-based tool for immersive 22.2 channel ambiance design," *Proc. of the 40<sup>th</sup> Audio Eng. Soc. Conference on Spatial Audio*, Tokyo, Oct. 8-10, 2010.

.: Woszczyk, W., **Leonard, B.** and D. Ko. "Virtual Acoustics at the Service of Music Performance and Recording," *Archives of Acoustics* 37.1 (2012): 109-113.

Woszczyk, W., **Leonard, B.** and D. Ko. "Virtual Stage Acoustics," *Proc. of the International Symposium on Room Acoustics*, Melbourne, Aug. 29-31, 2010.

#### PUBLISHED RECORDINGS

\* = currently in production \* The Beth McKenna Jazz Orchestra. *Home: Montréal*. 2016, Beth McKenna. Editing, mixing & mastering.

\* Olga Dobrovolskaya. *Russian Songs (working title)*. 2016, Dmitri Grijalva. Recording, editing & mixing.

The Beth McKenna Jazz Orchestra. *Start*. 2015, Beth McKenna. Editing, mixing & mastering.

Jari Piper. *New Works for Solo Cello*. 2014, Jari Piper. Recording, editing & mixing.

Jonathan Crow, Matt Haimovitz, David Krakauer, SoCalled & Geoffrey Burleson. *Akoka*. 2014, Oxingale Records. Editing. **2014 JUNO Nominee – Classical Album of the Year: Solo or Chamber Ensemble**

Frédéric Bednarz & Natsuki Hiratsuka. *Sonatas for violin and piano: Szymanowski & Shostakovich*. 2014, Metis Islands Music. Recording, editing & mixing.

Alexander Solopov. *Piano Fantasies*. 2013, Cantablis Records. Recording, editing, mixing & mastering.

Seraphina. *Road to the Isles*. 2013. Recording, editing & mixing.

Frédéric Bednarz & Natsuki Hiratsuka. *Karol Szymanowski: Sonata OP.9 for violin and piano*. 2013, Metis Islands Music. Recording, editing & mixing.

Dave & Emma Hart. *Hold On*. 2012. Additional recording.

- Duo Giocoso. *Beethoven, Janáček, Franck*. 2011, Axel Records. Recording, editing & mixing.
- Matt Haimovitz & Christopher O’Riley. *Shuffle.Play.Listen*. 2011, Oxingale Records. Editing, additional recording.
- Ian Kelly. *Diamonds & Plastic*. 2011, Audiogram Records. Additional recording.
- Elias-Axel Pettersson. *Momentum*. 2010, Axel Records. Recording, editing & mixing.
- Ben Wilkins. *Ben Wilkins*. 2010. Additional recording.
- Christopher D. Lewis. *The New-fangled Clavier*. 2010, NewMixMusic. Mastering.
- Shae Fiol. *Catch a Ride*. 2010, Purpose Records. Recording (rhythm section).
- Spaces for Morning. EP 2010. Recording (rhythm section).
- The Bronze Fondue. *Bronze Fondue*. 2009. Recording.
- M Shanghai String Band. *Mapmaker’s Daughter*. 2009, Red Parlor Records. Recording, editing.
- Nick Joseph. *New Shades of Blue*. 2008. Recording & mixing.
- California Lutheran University Choir. *Spirit Movin’*. 2006. Recording.
- California Lutheran University Choir. *Blue Suns, Green Whirlwinds*. 2006. Recording & mixing.
- Additional audio projects:* (assistant engineer, technical coordinator, unreleased material, etc.) Michelle Ndegeocello, Bob Belden, James Taylor, Russ Titleman, Karrin Allyson, Lenny Pickett & Combo Nuvo, Robert Glasper, Jim Anderson, Devo Springsteen, Aaron Diehl, Martha de Francisco, the National Youth Orchestra of Canada and others.

#### INVITED PRESENTATIONS

- Panelist. “3D audio”, “A Hero’s Journey”, “Audio Production for Jazz” & “Location Recording”, “Live Sound for Jazz”. 9<sup>th</sup> annual Central Region Audio Student Summit (C.R.A.S.S.). Webster University, St. Louis. 27-29 Mar. 2015.
- Panelist. “Enveloping the Listener: A workshop on immersive audio”. Centre for Interdisciplinary Research in Music Media and Technology, Montreal. 28 Mar. 2014. Workshop.

Panelist. "3D audio", "Tech Talk", "The Psychological Aspects of Recording" & "Audio Small Business". 8<sup>th</sup> annual Central Region Audio Student Summit (C.R.A.S.S.). Webster University, St. Louis. 21-23 Mar. 2014.

Leonard, Brett A. "In Situ Measurements of the Grand Piano." Music and Research Laboratory (MARL) Friday lecture series. New York University, New York. 25 Feb. 2011. Lecture.

Panelist. "Capturing Height in Surround." 131<sup>st</sup> Convention of the Audio Engineering Society. New York. 20 Oct. 2011. Workshop.

Leonard, Brett A. "The Practical Effect of Lateral Reflections in the Control Room." TechnoBlitz. Montreal. 9 Nov. 2011. Lecture.

Panelist. "How to Get the Recording You Want: Creativity and Sound Recording." 2012 POP Montreal symposium. 20-23 Sept. 2012.

Panelist. "Sound Design Tools for Multichannel Audio with Height." 133<sup>th</sup> Convention of the Audio Engineering Society. San Francisco. 28 Oct. 2012. Workshop.

Panelist. "Workshop on applications of robotics in music performance and analysis." Centre for Interdisciplinary Research in Music Media and Technology, Montreal. 13 Sept. 2013. Workshop.

Leonard, Brett A. "Massive Multichannel 3D Sound: Working with tomorrow's immersive cinema formats." TechnoBlitz. Montreal. 3 Oct. 2013. Lecture.