

## WILL HOWIE

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## EDUCATION

Current

### **Doctor of Philosophy, Sound Recording**

Schulich School of Music, McGill University, Montreal  
Thesis Title: Capturing Orchestral Music for Three-Dimensional Audio Playback  
Supervisors: Prof. Richard King, Prof. Wieslaw Woszczyk  
Expected Graduation: May 2018

2008

### **Masters of Music, Sound Recording**

Schulich School of Music, McGill University, Montreal

2004

### **Bachelors of Music, Secondary Education**

University of British Columbia, Vancouver

## HONOURS

2015 - 2018

SSHRC Joseph-Armand Bombardier Canada Graduate Scholarship  
(Social Sciences and Humanities Research Council)

2017

International Graduate Mobility Award (McGill)

2015

Graduate Research Enhancement and Travel Award (McGill)

2014 - 2015

Graduate Excellence Fellowship (McGill)

2014

King Graduate Award (McGill)

2009

Canadian Academy of Recording Arts and Sciences Fred Sherratt Award

2007

Audio Engineering Society Student Recording Award

## RESEARCH AND TEACHING INTERESTS

My research interests lie primarily in developing recording techniques for capturing music for playback with three-dimensional audio systems. Working with the NHK 22.2 Multichannel Sound format, I am focused on developing music recording techniques that present coherent, highly realistic sonic images, as well as a high degree of spatial immersion and integration.

As an educator, I enjoy teaching all aspects of audio production, particularly 3D audio, and classical music production and post-production techniques.

## TEACHING EXPERIENCE

2017 - 2018

**Instructor**, McGill University, Montreal

- Course Title: Introduction to Sound Recording (co-taught)
- Teaching practical classes and lectures in various aspects of sound recording and reproduction

2014 - 2018

**Instructor**, McGill University, Montreal

- Course Title: Digital/Analog Editing
- Developed curriculum, instructed and assessed students for graduate level course in analog and digital music editing
- Frequent one-on-one meetings with students covering class-related topics, as well as other areas of sound recording

2015

**Teaching Assistant**, McGill University, Montreal

- Course Title: Introduction to Electro-acoustics
- graded lab reports and met with students to discuss results

2014 - 2015

**Teaching Assistant**, McGill University, Montreal

- Course Title: Webcasting Coordinator/Recording Engineer
- directed team of audio and video technicians in the production of live broadcasts of Schulich School of Music concerts
- attended production meetings, researched aspects of live streaming content

## INVITED PRESENTATIONS

2017

"Immersive Audio Capture for 22.2 Multichannel Sound (updated)", Tokyo University of the Arts, Tokyo, April 2017, 60 minutes.

"Techniques for Three Dimensional Audio Capture of Musical Performance," (with Morten Lindberg) Audio Engineering Society, McGill University, Montreal, March 2017, 45 minutes.

- 2016 "Immersive Audio Capture for 22.2 Multichannel Sound", Audio Engineering Society, University of British Columbia, Vancouver, August 2016, 60 minutes.
- "Immersive Audio Capture for 22.2 Multichannel Sound" (with Bryan Martin), Symposium IX 3<sup>rd</sup> Edition, Society for Arts and Technology, Montreal, June 2016, 90 minutes.
- "Three-Dimensional Music Recording" (with Bryan Martin), as part of *Workshop on Three-dimensional Immersive Audio*, Centre for Interdisciplinary Research in Music Media and Technology, McGill University, April 2016, 45 minutes.
- "Three-dimensional recording techniques for classical, jazz, and pop/rock music," Yamaha Corporation, March 2016, 120 minutes.
- "Three-dimensional recording techniques for classical, jazz, and pop/rock music," Kyushu University, March 2016, 45 minutes.
- "Three-dimensional recording techniques for classical, jazz, and pop/rock music," Tokyo University of the Arts, February 2016, 100 minutes.
- "Three-dimensional recording techniques for classical, jazz, and pop/rock music," NHK Science and Technical Research Laboratories, February 2016, 120 minutes.
- 2015 "Three Dimensional Recording Techniques for Classical Music," Audio Engineering Society, Rochester Institute of Technology, November 30, 2015, 30 minutes
- "3D recording listening and evaluation," Rochester Institute of Technology, November 30, 2015, 60 minutes

#### ADDITIONAL GUEST LECTURES

In addition to the invited lectures listed above, I have delivered guest lectures for the following graduate and undergraduate courses at McGill University: MUSR 629 *Technical Ear Training*, MUSR 670 *Recording Theory & Practice*, MUSR 692 *Music Production Workshop*, MUSR 691 *3D Audio Seminar*, MUSR 200 *Audio Recording Essentials*, on topics including 3D audio production, stereo music production and spatial hearing.

#### RESEARCH EXPERIENCE

- 2014 - Present **Doctoral Student**, McGill University, Montreal
- researching and developing three-dimensional music recording techniques for classical, contemporary, jazz, and pop/rock music
  - special focus on orchestral music recording techniques optimized for 22.2 Multichannel Sound
- 2010 **Research Assistant**, McGill University, Montreal
- assisting in the capture of high resolution multichannel impulse responses of various music venues in Vancouver
  - supervised by Wieslaw Woszczyk as part of a larger, multi-year project
- 2006 **Research Assistant**, McGill University, Montreal
- Maintaining and testing audio for high resolution video link between McGill University and University of British Columbia
  - joint research project between McGill and UBC, supervised by Wieslaw Woszczyk

#### PROFESSIONAL WORK EXPERIENCE

- 2011 - 2014 **Recording Engineer**, Canadian Broadcasting Corporation, Vancouver
- Recording, Editing, Mixing and Mastering content for national broadcast on CBC Radio 1, Radio 2, Espace Musique and CBC Television
- 2006 - Present **Freelance Sound Engineer / Music Producer**, Vancouver, Montreal
- Please see Appendix A, B and C for commercial credits
- 2009 - 2014 **Assistant Head Technician**, Chan Centre for the Performing Arts, Vancouver
- Front of house and monitor mixing, acoustical adjustment, archival recording, technical set up and equipment maintenance
- 2007, 2008-2009 **Senior Audio Associate (2009) / Audio Associate** - The Banff Centre, Banff
- Recording, mixing, editing and mastering commercial releases, studio sessions,

demos and live concerts, production and post production audio for short films, teaching studio orientation classes, live sound reinforcement

- 2007 - 2008      **Concert Recording and Live Sound Coordinator** – Schulich School of Music, McGill University, Montreal  
• Scheduled concert recordings and live sound, FOH/monitors/recording engineer, trained engineers, completed payroll documents
- 2005 - 2008      **Sound Engineer** – Schulich School of Music, McGill University, Montreal  
• Recording, mixing, editing and mastering live concerts, student and faculty recordings, live sound reinforcement
- 2005              **Co-Director:** Contrasts Chamber Music Series, Vancouver  
• Selected repertoire and performers, booked venues, directed Festival Choir

#### ACADEMIC and ADMINISTRATIVE EXPERIENCE

2014 - 2015      **Secretary**, AES 59th Conference on Sound Reinforcement Engineering and Technology, Organizing Committee

#### PUBLICATIONS

##### Peer Reviewed

**W. Howie**, R. King, D. Martin, "Listener Discrimination Between Common Speaker-Based 3D Audio Reproduction Formats," *Journal of the Audio Engineering Society*, (accepted July 28, 2017)

**W. Howie**, R. King, D. Martin, F. Grond, "Subjective Evaluation of Orchestral Music Recording Techniques for Three-Dimensional Audio," in AES 142<sup>nd</sup> Convention, Berlin, Germany, 2017.

M. Boerum, B. Martin, R. King, G. Massenburg, D. Benson, **W. Howie**. "Lateral Listener Movement on the Horizontal Plane: Sensing Motion Through Binaural Simulation," in AES 61<sup>st</sup> International Convention, London, UK, 2016.

##### Peer Reviewed (Abstract and Precipis)

R. King, B. Leonard, **W. Howie**, J. Kelly, "Real or Illusion? A comparative study of captured ambience vs. artificial reverberation in immersive audio applications," in AES 142<sup>nd</sup> Convention, Berlin, Germany, 2017.

**W. Howie**, R. King, D. Martin, "A Three-Dimensional Orchestral Music Recording Technique, Optimized for 22.2 Multichannel Sound," in AES 141<sup>st</sup> Convention, Los Angeles, USA, 2016.

**W. Howie**, R. King, M. Boerum, D. Benson, A. Han, "Listener preferences for height channel microphone polar patterns in three-dimensional recording," in AES 139<sup>th</sup> Convention, New York, USA, 2015.

B. Martin, R. King, B. Leonard, D. Benson, **W. Howie**, "Immersive content in three-dimensional recording techniques for single instruments in popular music," in AES 138<sup>th</sup> Convention, Warsaw, Poland, 2015.

##### Editor Reviewed

R. King, B. Leonard, **W. Howie**, J. Kelly, "Real Rooms vs Artificial Reverberation: An evaluation of actual source audio vs. artificial ambience," *Proceedings on Musical Acoustics*, Vol. 29, No. 1, 2017.

##### Non-Peer Reviewed

R. King, **W. Howie**, J. Kelly, "A Survey of Suggested Techniques for Height Channel Capture in Multi-channel Recording," in AES 140<sup>th</sup> Convention, Paris, France, 2015.

**W. Howie** and R. King, "Exploratory microphone techniques for three-dimensional classical music recording," in AES 138<sup>th</sup> Convention, Warsaw, Poland, 2015.

#### AFFILIATIONS

Audio Engineering Society  
Canadian Broadcasting Corporation

#### LANGUAGES

English: fluent  
French: functional spoken, listening, reading, writing  
Japanese: basic

## APPENDIX A: PROFESSIONAL RECORDING CREDITS

**Standing Wave** New Wave (2017)  
Producer, Recording, Editing, Mixing, Mastering

**Skim Milk** The Monarch Sessions (2017)  
Producer, Recording, Mixing

**Phoenix Chamber Choir** When The Earth Stands Still (2017)  
Editing, Mastering

**Anthony Tan** Instantmusik (2017)  
Engineer

**Trio Verlaine** Ariadne's Legacy (2016)  
Session Producer, Engineer

**Phoenix Chamber Choir** Caged Bird (2016)  
Editing

**UBC University Singers** Earth Grown Old (2016)  
Recording Engineer, Editing

**Matt Haimovitz** Overtures To Bach (2016)  
Editing

**Monty Adkins & Terri Hron** Lépidoptères (2016)  
Sound Engineer, Liner Notes

**Couloir** Maxwell Muhly & Couloir (2016)  
Session Producer, Session Engineer

**Turning Point Ensemble** Thirst (2015)  
Recording Engineer, Digital Editing

**Tafelmusik Baroque Orchestra** Best of French Baroque Music (2015)  
Engineer

**Skim Milk** Ghosts of Jazz (2015)  
Executive Producer, Mastering, Bass

**Phoenix Chamber Choir** Mid-Winter Songs / Un Soir de Neige (2014)  
Recording Engineer, Digital Editing

**Trio Verlaine** Six Departures (2014)  
Session Producer, Engineer

**Pacific Sound Collective** Mai 68 (2014)  
Producer, Recording, Mixing

**Skim Milk** Skim Milk (2014)  
Mastering, Bass

**Stephen Chatman / UBC University Singers** Magnificat: Songs of Reflection (2013)  
Recording Engineer, Digital Editing

**Couloir** Wine Dark Sea (2013)  
Session Producer, Session Engineering

**aalt** Restless EP (2013)  
Producer, Recording, Mixing, Performer

**Shauna Rolston / Heather Schmidt** Icicles of Fire (2013)  
Digital Editing

**Sam Davidson** The Case for Space (2013)  
Producer, Recording, Mixing

**Ig Henneman Sextet** Live @ The Ironworks Vancouver (2012)  
Recording, Editing, Mixing, Mastering

**Christopher Costanza** The Cello Suites of J. S. Bach (2012)  
Recording Engineer

**Little Mountain Brass Band** Pastime with Good Company (2012)  
Producer, Engineer

**Clemens Purner (Director) / Edo Van Breemen (Music)** Panta Rhei (2012)  
Recording, Mixing

**John Bolton (Producer/Director) / Tobin Stokes (Music)** The Making of Fallujah (2012)  
Location Sound Recordist, Mixing

**Tafelmusik Baroque Orchestra** The Galileo Project (2012)  
Engineer

**John Oliver** Forging Utopia (2012)  
Digital Editing, Mastering

**The Classic Strings Duo** The Classic Strings Duo (2012)  
Digital Editing, Mastering

**Brasstronaut** Opportunity EP (2011)  
Recording

**Chor Leoni** Yuletide Fires 2 (2011)  
Producer, Editing

**Resorts** EP01 (2011)  
Mixing

**Mina Shum (Director) / Standing Wave (Music)** All (2011)  
Recording, Editing, Mixing

**Ballet BC / Turning Point Ensemble** 25th Anniversary Celebration [Live Performance and Studio Recording] (2011)  
Sound Design, Music Producer, Recording, Editing, Mastering

**Contact** Undercurrents (2011)  
Mixing, Digital Editing

**Mike Soviet** Mental (2011)  
Engineering, Guitar and Bass, Associate Producer

**Karl Schwonik Jazz Ensemble avec/with Rémi Bolduc** 1 + 4 (2011)  
Recording Engineer

**Tafelmusik Baroque Orchestra** Music From the Galileo Project: Music Of The Spheres (CD and Videos) (2010)  
Recording Engineer

**Anthony De Mare** Speak! The Speaking-Singing Pianist (2010)  
Assistant Engineer

**The NFYA Collection** 25 Years of New Music in New York (2010)  
Assistant Engineer

**Brasstronaut** Mount Chimaera (2010)  
Producer, Recording, Mixing

**Rainier Trio** The Rainier Trio (2010)  
Producer, Engineer

**Malcolm Aiken** Paper Star (2010)  
Producer, Recording, Mixing

**Mike Soviet** Not Chill (2010)  
Engineer

**Malcolm Aiken Band** Live @ Whistler Music Fest Promotional Video (2009)  
Recording, Mixing, Mastering

**Heather Bilodeau** Sunday Afternoon (2009)  
Recording, Mixing

**Mackenzie Jones Big Band** The Reach Around (2009)  
Recording, Mixing, Mastering, Session Producer

**Mathias Maute / Montreal Baroque Festival Orchestra** Versailles Voodoo (2009)  
Music Recording

**Stefania Neonato** Clementi Grand Piano in Concert (2009)  
Recording

**The Banff Centre** BISQC Promotional Video (2009)  
Final Sound Mix

**Stepper** Way Out (2009)  
Additional Recording, Track 11

**The Banff Centre** The Twelve Days of Christmas (2009)  
Sound Mix

**McGill Symphony Orchestra** Ascension: Mahler and Messiaen (2009)  
Mastering

**The Banff Centre** Deck The Halls (E Greeting) (2008)  
Recording

**The Banff Centre** Centre Pieces in Jazz and Creative Music ~ 2007 (2008)  
Recording (Tracks 1, 3, 4, 6, 14)

**Princess Productions** Collection 6:11:07 [Soundtrack] (2007)  
Recording, Mixing, Bass

**Joe Miller** Worn Out Joke (2007)  
Fender Bass, Electric Guitar, Piano, B3 Organ, Production and Arranging Consultant

**Panacea** Panacea (2007)  
Recording, Mixing

**Mackenzie Jones Big Band** Swampkratch (2006)  
Recording, Mixing, Co-Producer

**Stephen Chatman** Proud Music Of The Storm (2004)  
Performer – Chorus

**UBC University Singers** A Vancouver Christmas (2004)  
Performer – First Tenor

**UBC Symphony Orchestra** The Dream of Gerontius (2002)  
Performer – Chorus

## APPENDIX B: SELECTED CBC NATIONAL BROADCAST CREDITS

**Tegan and Sara** – CBC Music Fest 2014 (Summer 2014)  
Mixing Engineer

**Dan Mangan** – CBC Music Fest 2014 (Summer 2014)  
Mixing Engineer

**Arkells** – CBC Music Fest 2014 (Summer 2014)  
Mixing Engineer

**National Youth Symphony Orchestra** (Summer 2013)  
Recording Engineer

**Vancouver Symphony Orchestra** (Numerous Concerts 2011 to present)  
Recording Engineer

**CBC Toque Sessions 2013 (Bee Keepers, Dear Rouge)** (Winter 2013)  
Recording Engineer

**Joshua Hopkins** (Winter 2013)  
Recording Engineer

**Marc Andre-Hamelin** (Fall 2012)  
Recording Engineer

**James Parker** (Summer 2012)  
Recording Engineer

**Tony Wilson: A Day's Life Band** (Spring 2012)  
Mixing Engineer

**Turning Point Ensemble** (Spring 2012)  
Recording Engineer

**London Haydn Quartet** (Winter 2012)  
Recording Engineer

**Vancouver Opera – Romeo et Juliette** (Winter 2012)  
Recording Engineer

**Pacific Opera Victoria – Mary's Wedding** (Fall 2011)  
Recording Engineer

## **APPENDIX C: SELECTED PROFESSIONAL LIVE SOUND CREDITS**

**Steve Reich (Composer) / Vicky Chow (Piano)** Piano Counterpoint (Flexible Version World Premiere)  
(January 2013)  
Multi-Spatial Sound Design, Live Mix

**Little Chamber Music Series That Could** (Fall 2013)  
Live Sound and Archival Recording for series re-launch, including World and Vancouver premieres of music by Nicole Lizée

**The Chan Centre for the Performing Arts** (Fall 2009 – Summer 2014)  
Monitor mix for various concerts, including: Taj Mahal, Angelique Kidjo, Chucho Valdez, Pablo Ziegler and Regina Carter, Simon Shaheen, Zakir Hussain, Kronos Quartet

**Music On Main** (Spring 2010 – Spring 2014)  
Front of House and Monitor mixes, Archival Recording for various concerts, including:  
Gabriel Kahane, Tanya Tagaq, Richard Reed Parry, Barry Truax, James Hill, Calder Quartet, Giorgio Magnanensi

**Standing Wave** (Winter 2009 – Spring 2014)  
Sound Design and Archival Recording for various concerts/premieres

**Sound Technician** – Montreal Baroque Festival, Montreal, QC Summer 2008  
FOH/monitor mix: Pandit Sharda Sahai, sound reinforcement set-up: Traversée Miraculeuse, recording engineer: Versailles Vaudou!