

Education

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| December 2012 | Ph.D. Rensselaer Polytechnic Institute, Architectural Sciences, Acoustics |
| Ph.D. Thesis | <i>Bayesian spectrum representation in acoustics</i> |
| Advisor | Prof. Ning Xiang |
| Relevant Coursework | Acoustics and room acoustics, vibrations, measurement techniques, psychoacoustics, numerical PDE, neural networks and genetic algorithms, methods of applied math |
| August 2009 | Master of Science Rensselaer Polytechnic Institute, Architectural Sciences, Acoustics |
| M.S. Thesis | <i>A low-frequency investigation of coupled volume systems using finite-difference time-domain methods.</i> |
| May 2008 | Bachelor of Science Drake University, Mathematics, Physics |

Research Experience

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| 2012–2014 | Post-Doctoral Researcher , Aalto University, School of Science, Espoo Finland |
| 2008–2012 | Research Assistant , Architectural Acoustics, Rensselaer Polytechnic Institute |
| Summer 2009 | Research Intern , Microflown Technologies, Arnhem, The Netherlands |
| 2006–2007 | Research Assistant , Dept. of Mathematics and Computer Science, Drake University |

Skills and Interests

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| Areas | Statistical sampling methods and Bayesian inference, acoustic simulation and numerical partial differential equations, acoustic measurement techniques |
| Languages | Python/NumPy/SciPy · Matlab · \LaTeX · Mathematica · HTML/CSS · <i>basic</i> C/C++ |

Awards

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| 2012 | <i>Leo Beranek Student Medal</i> - Institute of Noise Control Engineering |
| 2012 | <i>Fulbright Student Research Grant</i> (deferred) |
| 2009–2011 | <i>HASS Fellowship</i> , Rensselaer Polytechnic Institute |
| 2010 | <i>ICA Young Scientist Award</i> , International Congress on Acoustics, Sydney |
| 2008 | <i>Outstanding Student in Mathematics</i> , Dept. of Mathematics, Drake University |
| 2004–2008 | <i>Presidential Scholarship</i> , Drake University |
| 2004–2008 | <i>Music Scholarship</i> , trumpet, Drake University |

Professional Service

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| 2010–Present | Reviewer - Journal of the Acoustical Society of America, IEEE Transactions on Audio, Speech, and Language Processing, JASA Express Letters |
| 2012 | Session organizer - Acoustics 2012, Hong Kong |
| 2011 | Session organizer - 161st Meeting of the ASA, Seattle |

Teaching

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| 2012 | Guest instructor , Sonics Research Lab II, Rensselaer Polytechnic Institute |
| 2011–2012 | Mentor , Rensselaer Polytechnic Inst. and Emma Willard High School |
| 2007 | Physics Tutor , Department of Physics and Astronomy, Drake University |

Affiliations

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| 2009–Present | Acoustical Society of America |
| 2012–Present | Institute of Electrical and Electronics Engineers |
| 2012–Present | IEEE Signal Processing Society |
| 2004–2008 | Phi Mu Alpha Sinfonia: President, treasurer of the Alpha-Beta chapter |

- 2013 **Jonathan Botts** and Lauri Savioja. Origin and control of unphysical solutions in room-acoustic finite difference simulations (In Review)
- Jonathan Botts**, José Escolano-Carrasco, and Ning Xiang. Design of IIR filters with Bayesian model selection and parameter estimation. *IEEE Transactions on Audio, Speech, and Language Processing*, 21(3):669–674, 2013
- Jonathan Botts** and Lauri Savioja. Integrating finite difference schemes for scalar and vector wave equations. In *IEEE Int. Conf. Acoust., Speech, Signal Processing*, Vancouver, BC, Canada, 2013
- Wesley Henderson, Paul Goggans, Ning Xiang, and **Jonathan Botts**. Bayesian inference approach to room-acoustics modal analysis. *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, 2013
- Jonathan Botts**. Nested sampling in practice. In *21st International Congress on Acoustics*, Montreal, Canada, June 2-7 2013. (Invited)
- Tomislav Jasa, **Jonathan Botts**, and Ning Xiang. Energy based Markov chain Monte Carlo algorithms for Bayesian model selection. In *21st International Congress on Acoustics*, Montreal, Canada, June 2-7 2013
- Paul Luizard, Makoto Otani, **Jonathan Botts**, Lauri Savioja, and Brian Katz. Comparison of sound field measurements and predictions in coupled volumes between numerical methods and scale model measurements. In *21st International Congress on Acoustics*, Montreal, Canada, June 2-7 2013
- 2012 **Jonathan Botts** and Ning Xiang. Bayesian inference for acoustic impedance boundaries in room-acoustic finite difference time-domain modeling. In *Bayesian Inference and Maximum Entropy Methods in Science and Engineering*, volume 1443, pages 306–313, 2012
- Jonathan Botts** and Ning Xiang. Bayesian filter design for time-domain impedance representation in acoustic finite difference methods. In *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*, number 7, pages 4190–4198. Institute of Noise Control Engineering, 2012
- Wesley Henderson, **Jonathan Botts**, and Ning Xiang. Bayesian room-acoustic modal analysis. *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*, 2012(7):4038–4045, 2012
- 2010 Ning Xiang, Philip Robinson, and **Jonathan Botts**. Comment on “optimum absorption and aperture parameters for realistic coupled volume spaces determined from computational analysis and subjective testing results”. *The Journal of the Acoustical Society of America*, 128:2539, 2010
- Jonathan Botts**, Alexander Bockman, and Ning Xiang. On the selection and implementation of sources for finite-difference methods. In *Proceedings of the 20th International Congress on Acoustics*. International Congress on Acoustics, August 2010
- 2009 Emiel Tijs, **Jonathan Botts**, Hans-Elias de Bree, and E. Arato. Acoustic particle velocity enabled methods to assess room acoustics. In *Euronoise*, Edinburgh, 2009

Book Chapters
and Review

- 2014 U. Peter Svensson, **Jonathan Botts**, and Lauri Savioja. *Handbook of Architectural Acoustics*, chapter Computational Modeling of Room Acoustics I: Wave-based modeling. J. Ross Publishing, 2014 (to appear)
- 2012 Philip Robinson and **Jonathan Botts**. Sound and Signals (book review). *The Journal of the Acoustical Society of America*, 132(3):1862–1862, 2012
- 2009 **Jonathan Botts**, Emiel Tijs, and Hans-Elias de Bree. *The Microflow E-book*, chapter Room Acoustics. 2009