

Blake E. Butler, PhD

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London, Ontario, Canada
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Education

- 2012 PhD - Psychology, Neuroscience & Behaviour
 McMaster University, Hamilton, Ontario
 Advisor - Laurel J. Trainor
- 2008 MSc - Health and Rehabilitation Science
 University of Western Ontario, London, Ontario
 Advisor - Prudence Allen
- 2006 BMSc - Medical Sciences
 University of Western Ontario, London, Ontario

Professional Appointments

- 2018 Assistant Professor – Department of Psychology
 Investigator – Brain & Mind Institute
 Investigator – National Centre for Audiology
 Scientist – Children’s Health Research Institute
 University of Western Ontario, London, Ontario
- 2016 Research Scientist & Adjunct Research Professor
 Department of Psychology
 University of Western Ontario, London, Ontario
- 2012 Postdoctoral Fellow
 Cerebral Systems Lab (P.I. Stephen G. Lomber)
 Department of Physiology & Pharmacology, Brain and Mind Institute
 University of Western Ontario, London, Ontario

Research Support Currently Held

- 2017-2022 Natural Sciences and Engineering Research Council (NSERC)
 Structural and Functional Measures of Auditory Cortical Development
 Role: Principal Investigator
 Annual Award: \$26,000
- 2020-2023 BrainsCAN Accelerator Grant
 Characterizing a neural basis for crossmodal plasticity following sensory loss
 Role: Principal Investigator
 Annual Award Value: \$149,225
- 2018-2023 Canadian Institutes for Health Research (CIHR) Project Grant
 Cortical plasticity following deafness
 Role: Co-Investigator
 Annual Award: \$237,150

- 2018-2021 Western Strategic Support for CIHR Success
Imaging Neural Function & Connectivity in the Deaf
Role: Principal Investigator
Award Value: \$25,000
- 2019-2021 BrainsCAN Accelerator Stimulus Grant
Noninvasive Brain Stimulation to Influence Auditory Perception
Role: Co-Investigator
Award Value: \$104,000
- 2019-2024 Canada Foundation for Innovation - John Evans Leadership Fund & Ontario Research Fund - Small Infrastructure Grant
Characterizing a neural basis for crossmodal plasticity following sensory loss
Role: Principal Investigator
Award Value: \$490,613
- 2020-2021 Western Strategic Support for SSHRC Success
Narrative Engagement in Individuals with Cochlear Implants
Role: Principal Investigator
Award Value: \$25,000
- Children's Health Research Institute Internal Research Grand Fund
Impact of pediatric hearing loss on mathematics and underlying cognitive functions
Role: Principal Investigator
Award Value: \$10,000

Research Support Previously Held

- 2017-2019 BrainsCAN Accelerator Stimulus Grant
Imaging Visually-Evoked Cortical Activity in the Cat at 7T
Role: Principle Investigator
Award Value: \$90,000
- 2017-2018 BrainsCAN Accelerator Stimulus Grant
fMRI Compatible Reversible Deactivation to Examine Cerebral Networks
Role: Co-Investigator
Award Value: \$110,000

Peer-Reviewed Publications

† manuscripts co-authored by trainees

UNDER REVIEW

25. Herrman B, **Butler B** (Under Review). Hearing loss and brain plasticity: The hyperexcitability phenomenon. *Brain Structure & Function*.
24. Trachtenberg B, **Butler B**, Lomber SG. (Revision Requested). Medial geniculate axon terminal density in visual and auditory cortex of hearing and deaf cats. *Brain Structure & Function*.
23. Boucher C, **Butler BE**, Meredith MA, Lomber SG. (Revision Requested). Crossmodal plasticity in core auditory cortex following deafness: An evaluation of evidence for and against. *Neuroscience & Biobehavioral Reviews*.

PUBLISHED

22. Levine A[†], Li B[†], Barnes P, Lomber SG, **Butler BE**. (2020). Assessing alfaxalone as an

- anesthetic for fMRI in animals. *Journal of Neuroscience Methods*, 334.
21. Alencar CDC, **Butler BE**, Lomber SG. (2019). What and how the deaf brain sees. *Journal of Cognitive Neuroscience*, 31:1091-1109.
 20. **Butler BE**, Sunstrum JK[†], Lomber SG. (2018). Modified origins of cortical projections to the superior colliculus in the deaf: Dispersion of auditory efferents. *Journal of Neuroscience*, 38:4048-4058. PMID: 29610441.
 19. Stolzberg DJ, **Butler BE**, Lomber SG. (2018). Effects of neonatal deafness on resting state functional network connectivity. *Neuroimage*, 165:69-82. PMID: 28988830.
 18. **Butler BE**, de la Rua A[†], Ward-Able T[†], Lomber SG. (2018). Cortical and thalamic connectivity to the second auditory cortex of the cat is resilient to the onset of deafness. *Brain Structure and Function*, 223:819-835. PMID: 28940055.
 17. Stolzberg DJ, Wong C, **Butler BE**, Lomber SG. (2017). "Catlas": An MRI-based three-dimensional cortical atlas and tissue probability maps for the domestic cat (*felis catus*). *Journal of Comparative Neurology*, 525:3190-3206. PMID: 28653335
 16. **Butler BE**, Chabot N, Lomber SG. (2017). Origins of thalamic and cortical projections to the posterior auditory field in congenitally deaf cats. *Hearing Research*, 343:118-127 1-10. PMID:27019080
 15. **Butler BE**, Chabot N, Lomber SG. (2016). Quantifying and comparing the pattern of thalamic and cortical projections to the posterior auditory field in hearing and deaf cats. *Journal of Comparative Neurology* 524:3042-3063. PMID: 27019080
 14. **Butler BE**, Chabot N, Lomber SG. (2016). A quantitative comparison of the hemispheric, areal, and laminar origins of sensory and motor cortical projections to the superior colliculus of the cat. *Journal of Comparative Neurology* 524:2623-2642. PMID: 26850989
 13. Hall AJ, **Butler BE**, Lomber SG. (2016). The cat's meow: A high-field fMRI assessment of cortical activity in response to vocalizations and complex auditory stimuli. *NeuroImage*, 127:44-57. PMID: 26658927
 12. Chabot N*, **Butler BE***, Lomber SG. (2015). Differential modification of cortical and thalamic projections to cat primary auditory cortex following early- and late-onset deafness. *Journal of Comparative Neurology* 523: 2297-2320. PMID: 25879955 *Contributed equally
 11. **Butler BE**, Hall AJ, Lomber SG. (2015). Functional imaging of pitch processing in the auditory cortex of the cat. *PLoS One* doi:10.1371/journal.pone.0134362. PMID: 26225563
 10. **Butler BE**, Trainor LJ. (2015). The musician redefined: A behavioural assessment of rhythm perception in professional club DJs. *Timing and Time Perception*, doi:10.1163/22134468
 9. Folland NA, **Butler BE**, Payne JE, Trainor LJ. (2015). Cortical representations sensitive to the number of perceived auditory objects emerge between 2 and 4 months of age: Electrophysiological evidence. **Journal of Cognitive Neuroscience** 27, 1060-1067. PMID: 2546670
 8. **Butler BE**, Lomber SG. (2013). Functional and structural changes following deafness: From cochlea to cortex. *Frontiers in Systems Neuroscience* 7:89-105, doi:10.3389/fnsys.2013.00092.b. PMID: 24324409
 7. **Butler BE**, Trainor LJ. (2013). Brief pitch-priming facilitates infants' discrimination of pitch-evoking noise: Evidence from event-related potentials. *Brain and Cognition* 83, 271-278. PMID: 24095845
 6. **Butler BE**, Folland NA, Trainor LJ. (2013). Development of pitch processing: Infants' discrimination of iterated rippled noise stimuli with unresolved spectral content. *Hearing Research* 304, 1-6. PMID: 23764671
 5. **Butler BE**, Trainor LJ. (2012). Sequencing the cortical processing of pitch-evoking stimuli using EEG analysis and source estimation. *Frontiers in Auditory Cognitive Neuroscience* 3,

180. PMID: 22740836
4. Folland NA, **Butler BE**, Smith NA, Trainor LJ. (2012). Processing simultaneous auditory objects in infancy: Music and mistuned harmonics. *Journal of the Acoustical Society of America* 131(1), 993-997. PMID: 22280722
 3. Vida MD*, Vingilis-Jaremko L*, **Butler BE***, Gibson LC*, Monteiro S*. (2012). The reorganized brain: How treatment strategies for stroke and amblyopia can inform our knowledge of plasticity throughout the lifespan. *Developmental Psychobiology* 54(3), 357-368. PMID: 22415923 *Contributed equally
 2. **Butler BE**, Purcell DW, Allen P. (2011). Distortion product otoacoustic emission contralateral suppression functions in children with auditory processing disorders. *International Journal of Audiology* 50(8), 530-539. PMID: 21751943
 1. Purcell DW, **Butler BE**, Saunders TJ, Allen P. (2008). Distortion product otoacoustic emission contralateral suppression functions obtained with ramped stimuli. *Journal of the Acoustical Society of America* 124(4): 2133-2148. PMID: 19062854

BOOK CHAPTERS

2. Herrmann BJ, **Butler BE**. (In Press). Aging auditory cortex: The impact of reduced inhibition on function. In "The Neuroscience of Aging".
1. Lomber SG, **Butler BE**, Glick H, Sharma A. (2020). Crossmodal neuroplasticity in deafness: Evidence from animal models and clinical populations. In "Multisensory Perception: from Laboratory to Clinic", Sathian and Ramachandran, eds.

PUBLISHED THESES

- Butler BE**. (2013). Adults' and infants' perception of pitch-evoking stimuli with no resolvable spectral cues. McMaster University Libraries Institutional Repository (MacSphere).
- Butler BE**. (2008). Contralateral suppression of distortion product otoacoustic emissions in children with and without auditory processing disorders. University of Western Ontario.

Awards & Distinctions

RESEARCH AWARDS

- | | |
|-----------|---|
| 2010-2012 | NSERC PGS Doctoral Research Scholarship (\$42,000) |
| 2010-2011 | OGS Doctoral Research Scholarship (\$15,000; declined) |
| 2009-2010 | NSERC CREATE Auditory Neuroscience Scholarship (\$22,000) |
| 2009-2010 | OGSST Prosser Scholarship (\$15,000; declined) |

TRAVEL SUPPORT

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|------|--|
| 2017 | Acoustical Society of America "Acoustics Outreach to Budding Scientists" (\$750) |
| | International Conference on Auditory Cortex (\$500) |
| 2014 | Gordon Research Seminar Travel Grant (\$650) |
| 2012 | Graduate Student Association Grant – Gordon Research Conference (\$500) |
| 2012 | Psychology, Neuroscience & Behaviour Grant - Infant Studies (\$500) |
| | Yates Travel Scholarship - Neurosciences and Music IV (\$500) |
| | Psychology, Neuroscience & Behaviour Grant - Neurosciences and Music IV (\$450) |
| 2010 | Psychology, Neuroscience & Behaviour Grant - ICMPC (\$500) |
| 2009 | Graduate Student Association Grant - SMPC (\$500) |
| | Psychology, Neuroscience & Behaviour Grant - SMPC (\$500) |

TEACHING DISTINCTIONS

- 2010 Council of Canadian Departments of Psychology Teaching Award
2008 University of Western Ontario Teaching Honour Roll
Graduate Student Teaching Award (Nominated)
2007 Graduate Student Teaching Award (Nominated)

Invited Talks (last 5 years)

- 2018 VCU Department of Anatomy & Neurobiology Seminar, Richmond, VA
“The Search for an Neuroanatomical Basis for Plasticity following Deafness”
- 2017 National Centre for Audiology Hearing Research Seminar, London
“Brain organization in the deaf: Implications for plasticity and hearing restoration”
Spring 2017 Meeting of the Acoustical Society of America, Boston
“Quantifying connectivity to auditory cortex: Implications for crossmodal plasticity and hearing restoration”
- 2016 Department of Physiology and Pharmacology Seminar Series, London
“Structural Analysis of brain connectivity in deafness: Implications for functional reorganization & plasticity”
- 2015 11th Meeting of the German Neuroscience Society, Gottingen
“Cortical Plasticity following sensory deprivation: Characterizing the patterns of thalamocortical and corticocortical projections in early- and late-deaf cats”
- 2014 Gordon Research Conference on the Auditory System, Lewiston
“Imaging pitch processing in the cat auditory cortex with high-field fMRI”
- 2013 National Centre for Audiology Hearing Research Seminar, London
“Pitch processing and stream segregation during development”

Conference Participation (last 5 years)

- 2019 Conference on Implantable Auditory Prostheses, Tahoe City
“Neuroanatomical stability in the deaf: Implications for plasticity and functional restoration” (Poster)
International Hearing Loss Conference, Niagara-on-the-Lake
“Stability in the pattern of crossmodal projections following hearing loss” (Podium)
Association for Research in Otolaryngology, Baltimore
“An Interhemispheric Comparison of Projections to Temporal Auditory Cortex in Normal Hearing and Early Deaf Cats” (Poster)
- 2018 Gordon Research Conference on the Auditory System, Smithfield
“The dispersion of auditory cortical outputs to the superior colliculus following hearing loss” (Poster) & Discussion Leader – Seminar keynote session
International Multisensory Research Forum, Toronto
“The dispersion of auditory cortical outputs to the superior colliculus following hearing loss” (Poster)
42nd Association for Research in Otolaryngology Meeting, San Diego
- 2017 6th International Conference on Auditory Cortex, Banff
“Quantifying and comparing connectivity within auditory cortex and between sensory cortices in hearing and deaf cats” (Poster)

- Conference on Implantable Auditory Prostheses, Lake Tahoe
 “Quantifying connectivity to auditory cortex: Implications for crossmodal plasticity and hearing restoration” (Poster)
- 41st Association for Research in Otolaryngology Meeting, Baltimore
 “Quantifying the impact of early-onset hearing loss on stimulus-directed behaviour: An analysis of corticotectal projections in the deaf cat” (Podium)
- 2016 Gordon Research Conference on the Auditory System, Lewiston
 “From Structure and Function to Behavior” (Session Moderator)
- Canadian Society for Brain, Behaviour & Cognitive Science, Ottawa
 “Quantifying corticotectal projections to the superior colliculus that underlie orienting behaviours in the cat” (Poster)
- 40th Association for Research in Otolaryngology Meeting, San Diego
 “Patterns of neuroanatomical connections to auditory cortical areas in hearing and deaf cats” (Podium)
- Canadian Neuroscience Meeting, Toronto
 “Assessing the effects of deafness on the neuroanatomical projections to the second auditory cortex (A2) of the cat” (Poster)
- 2015 Conference on Implantable Auditory Prostheses, Lake Tahoe
 “Differential patterns of thalamocortical and corticocortical projections to auditory fields of early- and late- deaf cats” (Poster)
- Neuroscience 2015 – Meeting of the Society for Neuroscience, Chicago
 “A comparison of thalamic and cortical projections to primary and non-primary auditory fields of the cat” (Poster)
- Canadian Neuroscience Meeting, Vancouver
 “Differential patterns of projections to the posterior auditory field in early- and late-deaf cats” (Poster)

Teaching and Course Design Experience

- 2021 Department of Psychology
 University of Western Ontario, London
 Instructor – Psych2115B Introduction to Sensation and Perception
 Instructor – Psych2015B The Psychology of Perception
- 2019 Department of Psychology
 University of Western Ontario, London
 Instructor – Psych2115A Introduction to Sensation and Perception
 Instructor – Psych4295F Sensory Systems in Enriched & Deprived Environments
- 2018 Department of Psychology
 University of Western Ontario, London
 Instructor – Psych4295F Sensory Systems in Enriched & Deprived Environments
- 2015 Department of Psychology
 University of Western Ontario, London
 Guest Lecturer -- Psych2115 Introduction to Sensation & Perception

2014 School of Communication Sciences and Disorders (Professional Program)
University of Western Ontario, London
Course Instructor -- CSD9516 Auditory Evoked Potentials and Emissions
Course Instructor -- CSD9517 Physiological Measurement

2011-2012 Department of Psychology Neuroscience and Behaviour
McMaster University, Hamilton
Lecturer -- PSYCH1X03 Introduction to Psychology

2011 Department of Psychology, Neuroscience & Behaviour
McMaster University, Hamilton
Course Designer -- PNB2XE3 Descriptive Statistics
Hired to design an interactive research design course for new 2nd year curriculum

2011 Department of Psychology, Neuroscience & Behaviour
McMaster University, Hamilton
Teaching Assistant -- PNB 3L03 Neuroscience Laboratory

2010 Department of Psychology, Neuroscience & Behaviour
McMaster University, Hamilton
Course Instructor -- PSYCH1X03 Introduction to Psychology

2008-2010 Department of Psychology, Neuroscience & Behaviour
McMaster University, Hamilton
Teaching Assistant -- Introduction to Statistics & Research Design

2006-2008 Faculty of Health Sciences
University of Western Ontario, London
Teaching Assistant – Interpersonal Communications

Trainee and Student Supervision

Postdoctoral Daniel Miller (2019-Present)
Alexandra Levine (2017-Present)

Graduate Sarah Bobbitt – MSc (neuroscience: 2020-Present)
Austin Roberston – MSc (neuroscience: 2020-Present)
Zhaleh Alipour – PhD (neuroscience: 2020-Present)
Cailey Salagovic – MSc (psychology: 2019-Present)
Jessica Lammert – MSc (psychology: 2019-Present)
Kate Raymond – MSc (neuroscience: 2019-Present)

Undergraduate Rebekah Gilliland – honours thesis (neuroscience; 2020-2021)
Rachel Shulman – honours thesis (psychology; 2020-2021)
Jenna Segall – honours thesis (psychology; 2020-2021)
Efterpi Marinis – honours thesis (psychology; 2019-2020)
Nicole Sedlak – honours thesis (psychology; 2019-2020)
Del Macgowan – honours thesis (neuroscience; 2019-2020)
Soojung Yu – honours thesis (neuroscience; 2019-2020)
James Patience – honours thesis (neuroscience; 2018-2019)
Thirushi Siriwardena – honours thesis (neuroscience; 2018-2019)

Editorial Contributions

INVITED EDITOR	Hearing Research – Central Consequences of Deafness Hearing Research – Special Issue on 6th International Conference on Auditory Cortex
AD HOC REVIEWER	Journal of Neuroscience, Journal of Neurophysiology, Hearing Research, Neuroreport, Perceptual & Motor Skills, Neuropsychologia, Journal of the Acoustical Society of America, Neuroimage, PLoS One

Service to Academy

2021-2023	Department of Psychology Graduate Affairs Committee
2020	Canadian Brain Research Strategy - ECR representative
2020-2021	The Western Interdisciplinary Neuroscience Lecture Series Organizing Committee
2019-2022	Department of Psychology Animal Care Executive Committee Department of Psychology Space & Facilities Executive Committee
2019-2020	Animal Behaviour & Cognition Faculty Search Committee
2018-2020	Co-Chair – Gordon Seminar on the Auditory System (Elected by peers)
2018	International Hearing Loss Meeting – Organizing Committee
2017-2021	Conference on Implantable Auditory Prostheses – Scientific Advisory Committee
2016	Advances & Perspectives in Auditory Neuroscience – Organizing Committee
2014-2018	Western University Research Board

Associations

Association for Research in Otolaryngology
Canadian Acoustical Association
Canadian Neuroscience Society
Cognitive Neuroscience Society
Society for Neuroscience
Canadian Society for Brain, Behaviour & Cognitive Science