

Curriculum Vitae

Björn Herrmann, Dr. rer. nat. (PhD), Dipl.-CommPsych

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The Brain and Mind Institute
The University of Western Ontario
London, Ontario N6A 5B7, Canada

Personal Information:

Nationality: German
Languages: native German speaker, fluent English speaker

Qualifications:

- 2011 **Dr. rer. nat. (PhD)**, *summa cum laude*
Psychology, University of Leipzig, Germany
Thesis title: "*Grammar and perception: Dissociation of early auditory processes in the brain*" (date of defense: 2011-10-27)
- 2008 **Diploma in Communication Psychology (MSc equivalent)**, *grade 1.0, equivalent to with distinction*
University of applied sciences Zittau/Görlitz, Germany
Thesis title: "*Localization of the syntactic mismatch negativity (sMMN) to phrase structure violations: An MEG study*"
- 2006 **Vordiplom in Communication Psychology (BSc equivalent)**, *grade 1.1, equivalent to with distinction*
University of applied sciences Zittau/Görlitz, Germany
- 2002 **Advanced technical college certificate (A-Level equivalent)**, *grade 1.8*
Kläre-Bloch-School, Night school, Berlin, Germany
- 2000 **Industrial mechanics for machines and systems (Apprenticeship)**
Siemens AG, Berlin, Germany

Academic employment

- 2015– **Post-doctoral fellow**
University of Western Ontario, Brain & Mind Institute, London, ON, Canada, *Prof. I.S. Johnsrude*
- 2012–2014 **Post-doctoral researcher**

Max Planck Research Group "Auditory Cognition", Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, *Prof. J. Obleser*

- 10/2014 **Visiting post-doctoral researcher**
Purdue University, Department of Biomedical Engineering, Central Auditory Processing Laboratory, West Lafayette, IN, USA, *Prof. E.L. Bartlett*
- 04/2014–
05/2014 **Visiting post-doctoral researcher**
Purdue University, Department of Biomedical Engineering, Central Auditory Processing Laboratory, West Lafayette, IN, USA, *Prof. E.L. Bartlett*
- 2008–2011 **PhD student in psychology**
Max Planck Institute for Human Cognitive and Brain Sciences, Department of Neuropsychology / Research Group "MEG and EEG: Signal Analysis and Modeling", Leipzig, Germany, *Prof. A.D. Friederici, Dr. B. Maeß*
DFG (German research foundation) graduate program "Function of Attention in Cognition", University of Leipzig, Germany, *Prof. E. Schröger*
- 2006–2007 **Internship / research assistant**
Max Planck Institute for Human Cognitive and Brain Sciences, Research Group "MEG and EEG: Signal Analysis and Modeling", Leipzig, Germany, *Dr. B. Maeß*
- 2005–2008 **Undergraduate research assistant**
University of applied sciences Zittau/Görlitz, Department of Communication Psychology, Görlitz, Germany, *Prof. J. Kawalek*

Non-Academic Employment (Full Time):

- 10/2012–
11/2012 **Internship**, Clinical Psychology
Heinrich-Braun-Hospital, Clinic for Psychiatry and Psychotherapy, Zwickau, Germany
- 2003–2004 **Quality control inspector**, calibration laboratory
Siemens AG (Power Generation), Berlin, Germany
- 2002–2003 **Civil service**, janitor
Pro Seniore, Nursing home for the elderly, Berlin, Germany
- 2000–2002 **Quality control inspector**, calibration laboratory
Siemens AG (Power Generation), Berlin, Germany
- 1997–2000 **Apprenticeship for industrial mechanics**
Siemens AG, Berlin, Germany

Competitive Research funding

- submitted One-year Western University's **CFREF BrainsCAN Stimulus** grant **57.2K CAD**
"System-wide electrophysiological assessment of hearing". (Role: Co-Applicant).

2017 **BMI Postdoctoral Collaborative Research Grant**, Western University. (Role: PI with D. Stolzberg) (declined) **1.85K CAD**

Awards and Honors:

2017 **Postdoctoral Scholar of the Year Award**, The University of Western Ontario, Canada

2017 **Travel award**, International Conference on Auditory Cortex, Canada **500 CAD**

2017 **Travel award**, Association for Research in Otolaryngology, USA **500 USD**

2015-2016 **Western Cognitive Neuroscience Postdoctoral Fellowship Award**, The Brain and Mind Institute, The University of Western Ontario, Canada **50,000 CAD**

2015 **Trainee Professional Development Award**, Society for Neuroscience, USA **1265 USD**

2014 **Travel award**, German Academic Exchange Service (DAAD) **1384 €**

2012 **PhD award**, Research Academy Leipzig, University of Leipzig, Germany **400 €**

Publications and citation record (26-Jul-17, Google Scholar):

Number of publications: **34** (16 first author; 2 joint first author; 4 opinion/review papers)
Number of citations: **~530**
Hirsch index: **14**
i10 index: **20**

List of publications in peer-review journals (N=34):

1. **Herrmann B**, Johnsrude IS (2017) Attentional state modulates the effect of an irrelevant stimulus dimension on perception. *Journal of Experimental Psychology: Human Perception and Performance*. ([webpage access](#))
2. **Herrmann B**, Parthasarathy A, Bartlett EL (2017) Aging affects dual encoding of periodicity and envelope shape in rat inferior colliculus neurons. *European Journal of Neuroscience* 2:299–311.
3. Holmes E, **Herrmann B** (2017). Revisiting the contribution of auditory cortex to frequency-following responses. *The Journal of Neuroscience* 37:5218-5220.
4. Henry MJ, **Herrmann B**, Kunke D, Obleser J (2017) Aging affects the balance of neural entrainment and top-down neural modulation in the listening brain. *Nature Communications* 8:15801. ([open access](#))
5. Henry MJ, **Herrmann B**, Grahn JA (2017) What can we learn about beat perception by comparing brain signals and stimulus envelopes? *PLoS ONE* 12:e0172454. ([open access](#))

6. **Herrmann B**, Henry MJ, Johnsrude IS, Obleser J (2016) Altered temporal dynamics of neural adaptation in the aging human auditory cortex. *Neurobiology of Aging* 45:10-22. ([webpage access](#))
7. **Herrmann B**, Henry MJ, Haegens S, Obleser J (2016) Temporal expectations and neural amplitude fluctuations in auditory cortex interactively influence perception. *NeuroImage* 124: 487-497.
8. Wöstmann M, **Herrmann B**, Maess B, Obleser J (2016) The spatiotemporal dynamics of auditory attention synchronize with speech. *Proceedings of the National Academy of Sciences* 113:3873-3878. ([open access](#))
9. Henry MJ, **Herrmann B**, Obleser J (2016) Neural microstates govern perception of auditory input without rhythmic structure. *The Journal of Neuroscience* 36:860-871. ([open access](#))
10. Scharinger M, Bendixen A, **Herrmann B**, Henry MJ, Mildner T, Obleser J (2016) Predictions interact with missing sensory evidence in semantic processing areas. *Human Brain Mapping* 37:704-716.
11. **Herrmann B**, Parthasarathy A, Han EX, Obleser J, Bartlett EL (2015) Sensitivity of rat inferior colliculus neurons to frequency distributions. *Journal of Neurophysiology* 114:2941-295. ([open access](#))
12. **Herrmann B**, Henry MJ, Fromboluti EK, McAuley JD, Obleser J (2015) Statistical context shapes stimulus-specific adaptation in human auditory cortex. *Journal of Neurophysiology* 113:2582-2591. ([open access](#))
13. Wöstmann M, **Herrmann B**, Wilsch A, Obleser J (2015) Neural alpha dynamics in younger and older listeners reflect acoustic challenges and predictive benefits. *The Journal of Neuroscience* 35:1458-1467. ([open access](#))
14. Henry MJ, **Herrmann B**, Obleser J (2015) Selective attention to temporal features on nested time scales. *Cerebral Cortex* 25:450-459. ([open access](#))
15. Wilsch A, Henry MJ, **Herrmann B**, Maess B, Obleser J (2015) Alpha oscillatory dynamics index temporal expectation benefits in working memory. *Cerebral Cortex* 25: 1938-1946. ([open access](#))
16. Wilsch A, Henry MJ, **Herrmann B**, Maess B, Obleser J (2015) Slow-delta phase concentration marks improved temporal expectations based on the passage of time. *Psychophysiology* 52:910–918.
17. **Herrmann B**, Schlichting N, Obleser J (2014) Dynamic range adaptation to spectral stimulus statistics in human auditory cortex. *The Journal of Neuroscience* 34:327-331. ([open access](#))
18. **Herrmann B**, Henry MJ, Scharinger M, Obleser J (2014) Supplementary motor area activations predict individual differences in temporal-change sensitivity and its illusory distortions. *NeuroImage* 101:370-379.
19. Henry MJ, **Herrmann B**, Obleser J (2014) Entrained neural oscillations in multiple frequency bands co-modulate behavior. *Proceedings of the National Academy of Sciences* 111:14935-14940. ([open access](#))
20. Henry MJ, **Herrmann B** (2014) Low-frequency neural oscillations support dynamic attending in temporal context. *Timing & Time Perception*, 2:62-86. ([open access](#))

21. Scharinger M, **Herrmann B**, Nierhaus T, Obleser J (2014) Simultaneous EEG-fMRI brain signatures of auditory cue utilization. *Frontiers in Neuroscience* 8:Article 137. ([open access](#))
22. **Herrmann B**, Henry MJ, Grigutsch M, Obleser J (2013) Oscillatory phase dynamics in neural entrainment underpin illusory percepts of time. *The Journal of Neuroscience* 33:15799-15809. ([open access](#))
23. **Herrmann B**, Henry MJ, Scharinger M, Obleser J (2013) Auditory filter width affects response magnitude but not frequency specificity in auditory cortex. *Hearing Research* 304:128-136. ([webpage access](#))
24. **Herrmann B**, Henry MJ, Obleser J (2013) Frequency-specific adaptation in human auditory cortex depends on the spectral variance in the acoustic stimulation. *Journal of Neurophysiology* 109:2086-2096. ([open access](#))
25. Ruhnau P, **Herrmann B**, Maess B, Brauer J, Friederici AD, Schröger E (2013) Processing of complex distracting sounds in school-aged children and adults: Evidence from EEG and MEG data. *Frontiers in Psychology* 4:717. ([open access](#))
26. **Herrmann B**, Maess B, Kalberlah C, Haynes J-D, Friederici AD (2012) Auditory perception and syntactic cognition: Brain activity-based decoding within and across subjects. *European Journal of Neuroscience* 35:1488-1496.
27. **Herrmann B**, Obleser J, Kalberlah C, Haynes J-D, Friederici AD (2012) Dissociable neural imprints of perception and grammar in auditory functional imaging. *Human Brain Mapping* 33:584-595.
28. Ruhnau P*, **Herrmann B***, Schröger E (2012) Finding the right control: The mismatch negativity under investigation. *Clinical Neurophysiology* 123:507-512.
29. Henry MJ*, **Herrmann B*** (2012) A precluding role of low-frequency oscillations for auditory perception in a continuous processing mode. *The Journal of Neuroscience* 32:17525–17527. ([open access](#))
30. Obleser J, **Herrmann B**, Henry MJ (2012) Neural oscillations in speech: Don't be enslaved by the envelope. *Frontiers in Human Neuroscience* 6:250. ([open access](#))
31. **Herrmann B**, Maess B, Hahne A, Schröger E, Friederici AD (2011) Syntactic and auditory spatial processing in the human temporal cortex: An MEG study. *NeuroImage* 57:624–633.
32. **Herrmann B**, Maess B, Friederici AD (2011) Violation of syntax and prosody - Disentangling their contributions to the early left anterior negativity (ELAN). *Neuroscience Letters* 490:116-120. ([webpage access](#))
33. Ruhnau P, **Herrmann B**, Maess B, Schröger E (2011) Maturation of obligatory auditory responses and their neural sources: Evidence from EEG and MEG. *NeuroImage* 58:630-639.
34. **Herrmann B**, Maess B, Hasting AS, Friederici AD (2009) Localization of the syntactic mismatch negativity in the temporal cortex: An MEG study. *NeuroImage* 48:590-600.

* Authors contributed equally to the work.

Manuscripts under review / in revision:

Herrmann B, Maess B, Johnsrude IS (in revision) Aging Affects Adaptation to Sound-Level Statistics in Human Auditory Cortex.

Talks (N=12, incl. N=9 invited):

- 2017 *The neural bases and age-related impairments of sound pattern processing* (**invited job talk**). Max Planck Society, Berlin, Germany.
- Neural oscillations support perception in temporally regular acoustic environments* (**invited talk**). Association for Research in Otolaryngology Meeting, Baltimore, MD, USA – Symposium: Patterns in sound sequences.
- 2015 *An adaptive auditory system supports listening in contexts* (**invited job talk**). Speech, Language & Hearing Science Department, Purdue University, West Lafayette, IN, USA.
- Neural adaptation depends on temporal context in younger and older listeners* (**slide session speaker**). Society for Neuroscience, Chicago, IL, USA – Nanosymposium: Auditory processing: Cortical encoding of complex sounds.
- An adaptive auditory system supports hearing in diverse acoustic environments* (**invited job talk**). The Brain and Mind Institute, The University of Western Ontario, London, Canada.
- A flexible auditory system supports listening in contexts* (**invited speaker**). The National Audiology Centre, Elborn College, London, Canada.
- Neural adaptation in varying temporal contexts* (**slide session speaker**). The University of Western Ontario, London, Canada – Rhythm & Timing Symposium.
- 2014 *Dynamic adjustments of neural activity to a temporally and spectrally changing acoustic environment* (**invited speaker**). Purdue University, West Lafayette, IN, USA – Seminars in Hearing Research.
- How a changing acoustic environment affects neural adaptation* (**invited speaker**). University of Leipzig, Germany – Psychology Colloquium.
- Dynamic neural adaptation to changes in the acoustic environment*, (**invited speaker**). University of Oldenburg, Germany – Psychology Colloquium.
- 2013 *Dynamic neural adaptation to changes in the acoustic environment* (**slide session speaker**). Berlin, Germany – Young Scientist Retreat.
- Low-frequency neural oscillatory dynamics and their role in auditory perception*, (**invited speaker**). Center for Mind/Brain Sciences, University of Trento, Italy – MEG workshop: Disentangling the brain web: a perspective from magnetoencephalography.

Teaching Experience:

- 2017 Guest lecture, The University of Western Ontario, Canada
Course: Introduction to Evoked Potentials: Magnetoencephalography
School of Communication Sciences and Disorders
- 2016 Workshop on Electroencephalography, The University of Western Ontario, Canada
3-day workshop on EEG-theory and hands-on analysis
The Brain and Mind Institute, Department of Psychology
- 2014 Guest lectures (N=3), University of Leipzig, Germany
*Course: Methods in cognitive neuroscience:
Behavioral and psychophysical methods; Electrophysiology; Electroencephalography*
Department of Psychology
- 2013 Guest lectures (N=3), University of Leipzig, Germany
*Course: Methods in cognitive neuroscience:
Electrophysiology; Electroencephalography; Magnetoencephalography*
Department of Psychology
- 2012 Guest lecture, University of Leipzig, Germany
Course: Methods in cognitive neuroscience: Magnetoencephalography
Department of Psychology
- 2007 Seminar, University of applied sciences Zittau / Görlitz, Germany
Course: Multimedia psychology
Department of Communication Psychology

Teaching/Professional Development:

- 2015 Teaching Support Centre workshop: "Teaching with technology" (workshop attended as participant)

Supervision / Co-Supervision:

- PhD theses *Malte Wöstmann*, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, 2012–2015 · *Anna Wilsch*, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, 2012–2014.
- BSc theses *Nadine Schlichting*, University of Chemnitz, Germany, 2013.
- Research assistants *Chad Buckland*, The University of Western Ontario, Canada, 2017–present · *Youngkyung Jung*, The University of Western Ontario, Canada, 2016–present · *Suvarna Moharir*, The University of Western Ontario, Canada, 2015–present · *Kristian McCarthy*, The University of Western Ontario, Canada, 2015–present · *Patrick Park*, The University of Western Ontario, Canada, 2015–2016 · *Jackie Tsang*, The University of Western Ontario, Canada, 2015 · *Kristina Bauer*, University of Leipzig, Germany, 2014–2015 · *Steven Kalinke*, University of Leipzig, Germany, 2013–2015 · *Leonhard Waschke*, University of Leipzig, Germany, 2013–2014 ·

Mirja Kuhlencord, University of Leipzig, Germany, 2013–2014 · *Christoph Daube*, University of Leipzig, Germany, 2012–2013

Interns *Nadine Schlichting*, University of Chemnitz, Germany, 2012 · *Nancy Grochol*, University of Leipzig, Germany, 2012 · *Sandra Siedlok*, University of Chemnitz, Germany, 2010 · *Thomas Pfeffer*, University of Magdeburg, Germany, 2009 · *Christian Hoffmann*, University of Osnabrück, Germany, 2009.

Reviewing – Funding agencies:

Deutsche Forschungsgemeinschaft (German Research Foundation), Germany

National Science Foundation (NSF), USA

Reviewing – Journals:

eLife; NeuroImage; Journal of Neurophysiology; Neuropsychologia; Attention, Perception, & Psychophysics; Transactions on Biomedical Engineering; European Journal of Neuroscience; Brain Structure and Function; PLoS ONE; Psychophysiology; Timing & Time Perception; Brain Topography; Frontiers in Psychology; Frontiers in Systems Neuroscience; International Journal of Psychophysiology; Journal of Memory and Language; Neuroscience Letters; Brain and Language; Brain Research; Brain and Cognition; Experimental Brain Research; Cognitive Neuroscience; Language, Cognition and Neuroscience

Professional Organizations / Memberships:

2015–present Association for Research in Otolaryngology

2013–present Society for Neuroscience

2011–2014 Cognitive Neuroscience Society

Other Activities:

2016 Thames Valley Science & Engineering Fair, High school, Judge

2014 Public science report, “Auditory processing in the brain: Dynamic adaptation to the acoustic environment”, Yearbook of the Max Planck Society, Germany, <http://www.mpg.de/7842770/>

2005–2006 Steering committee, student representative, Communication Psychology University of applied sciences Zittau/Görlitz, Germany

Conference poster presentations:

First-author (N=20) **2017:** CuttingEEG symposium (Glasgow, Scotland); **2016:** Association for Research in Otolaryngology (N=2; San Diego, USA) · Society for Neuroscience (San Diego, USA) · Symposium on Advances and Perspectives in Auditory Neurophysiology (San Diego, USA); **2015:** Society for Neuroscience (Chicago,

USA); **2014**: Society for Neuroscience (Washington DC, USA) · Symposium on Advances and Perspectives in Auditory Neurophysiology (Washington DC, USA) · Cognitive Neuroscience Society (Boston, USA) · International Conference on Auditory Cortex (Magdeburg, Germany); **2013**: Society for Neuroscience (San Diego, USA) · Symposium on Advances and Perspectives in Auditory Neurophysiology (San Diego, USA) · CRC Conference 2013: Rhythmic Dynamics and Cognition (Boston, USA) · Conference on Cognitive Hearing Science for Communication (Linköping, Sweden) · Psychologie und Gehirn (Würzburg, Germany); **2012**: International Conference on Auditory Cortex (Lausanne, Switzerland); **2011**: Cognitive Neuroscience Society (San Francisco, USA); **2010**: Research Festival Leipzig (Leipzig, Germany) · International Conference on Biomagnetism (Dubrovnik, Croatia); **2009**: Conference on Mismatch Negativity (Budapest, Hungary).

Co-author
(N=24)

2015: Society for Neuroscience (Chicago, USA) · Cognitive Neuroscience Society (San Francisco, USA); **2014**: Society for Neuroscience (N=3, Washington DC, USA) · Symposium on Advances and Perspectives in Auditory Neurophysiology (Washington DC, USA) · International Conference on Auditory Cortex (Magdeburg, Germany) · Cognitive Neuroscience Society (Boston, USA) · Erlanger audiology colloquium for scientists and developers (Erlangen, Germany); **2013**: Society for Neuroscience (San Diego, USA) · Neurobiology of Language Conference (San Diego, USA) · Symposium on Advances and Perspectives in Auditory Neurophysiology (San Diego, USA) · International Conference on Basic and Clinical Multimodal Imaging (Geneva, Switzerland) · TIMELY Workshop on "Development of Timing and Time Perception: A lifespan perspective" (Granada, Spain) · CRC Conference 2013: Rhythmic Dynamics and Cognition (Boston, USA) · International Conference on Cognitive Hearing Science for Communication (Linköping, Sweden) · Psychologie und Gehirn (Würzburg, Germany) · Cognitive Neuroscience Society (San Francisco, USA); **2012**: Society for Neuroscience (New Orleans, USA) · Conference on Mismatch Negativity (New York, USA); **2011**: Cognitive Neuroscience Society (San Francisco, USA) · International Conference on Cognitive Neuroscience (Palma, Mallorca, Spain); **2010**: Psychologie und Gehirn (Greifswald, Germany); **2009**: Conference on Mismatch Negativity (Budapest, Hungary).