
Peter W. Donhauser, Ph.D.

Ernst Strüngmann Institute
Deutschordenstraße 46
60528 Frankfurt am Main

Phone: +49 69 96769 120
Email: peter.donhauser@esi-frankfurt.de
Url: pwdonh.github.io

Degrees

- 2013-2019 **Ph.D.** in Neuroscience, McGill University, Canada
Advisor: Sylvain Baillet
- 2012-2013 **Ph.D. rotations** in Neuroscience, McGill University, Canada
Advisors: Alain Dagher, Sylvain Baillet, Alan C. Evans
- 2011-2012 **M.Sc.** Brain Imaging Methods, University of Glasgow, United Kingdom
Advisor: Pascal Belin
- 2008-2011 **B.Sc.** Psychology, Friedrich-Alexander University Erlangen-Nuremberg, Germany
Advisor: Oliver C. Schultheiss

Academic history

- 2021-pres Postdoctoral fellow (Poeppel department), Ernst Strüngmann Institute, Frankfurt, Germany (on parental leave 10/2025 - 7/2026)
- 2020-2021 Scientific consultant, self-employed
- 2019-2020 Postdoctoral fellow (Denise Klein lab), McGill University, Canada
- 2009-2011 Student research assistant (Oliver Schultheiss lab), Friedrich-Alexander University Erlangen-Nuremberg, Germany

Journal Articles

- in revision **Donhauser, P. W.**, Klein, D. Modeling individual mental representations underlying similarity judgments. *Nature Human Behavior*
- 2025 *Moore, C., ***Donhauser, P. W.**, Klein, D., and Byers-Heinlein, K. (2025). Efficient neural encoding as revealed by bilingualism. *Proceedings of the National Academy of Sciences*, 122(34):e2513768122
- 2024 Degano, G., **Donhauser, P. W.**, Gwilliams, L., Merlo, P., and Golestani, N. (2024). Speech prosody enhances the neural processing of syntax. *Communications Biology*, 7:748

*co-first author

- 2023 Wiesman, A. I., **Donhauser, P. W.**, Degroot, C., Diab, S., Kousaei, S., Fon, E. A., Klein, D., Baillet, S., PREVENT-AD Research Group, and Quebec Parkinson Network (2023). Aberrant neurophysiological signaling associated with speech impairments in parkinson's disease. *npj Parkinson's Disease*, 9(1):61
- 2022 **Donhauser, P. W.** and Klein, D. (2023). Audio-tokens: a toolbox for rating, sorting and comparing audio samples in the browser. *Behavior research methods*, 55(2):508–515
- 2020 **Donhauser, P. W.** and Baillet, S. (2020). Two distinct neural timescales for predictive speech processing. *Neuron*, 105(2):385–393
- 2018 **Donhauser, P. W.**, Florin, E., and Baillet, S. (2018). Imaging of neural oscillations with embedded inferential and group prevalence statistics. *PLOS Computational Biology*, 14(2):1–33
- 2015 **Donhauser, P. W.**, Rösch, A. G., and Schultheiss, O. C. (2015). The implicit need for power predicts recognition speed for dynamic changes in facial expressions of emotion. *Motivation and Emotion*, 39(5):714–721
- 2014 **Donhauser, P. W.**, Belin, P., and Grosbras, M.-H. (2014). Biasing the perception of ambiguous vocal affect: a TMS study on frontal asymmetry. *Social Cognitive and Affective Neuroscience*, 9(7):1046–1051

Conference abstracts & Presentations

- 2024 Donhauser, P. W., Klein, D. *Modeling individual mental representations from odd-one-out choices in a triplet task*. Highlights in the Language Sciences, Nijmegen, Netherlands.
- 2023 Donhauser, P. W., Sun, Y., Poeppel, D. *Learning to map between discrete structure in speech sounds and motor actions*. Society for the Neurobiology of Language, Marseille, France.
- 2022 Donhauser, P. W., Schaworonkow, N., Poeppel, D. *I can't believe it's not German: Characterizing context-dependent neural activity with pseudo-speech*. Biomag, Birmingham, UK.
Schaworonkow, N., Donhauser, P. W., Poeppel, D. *Electrophysiological variability in MEG evoked responses during auditory word processing*. Biomag, Birmingham, UK.
- 2021 Degano, G., Rampinini, A., Donhauser, P. W., Merlo, P., Golestani, N. *Cortical signatures of the interaction between prosody and syntax during naturalistic language processing*. Society for the Neurobiology of Language.
- 2018 Donhauser, P. W., Baillet, S. *A neural signature of predictive coding during natural speech listening*. International Conference on Biomagnetism, Philadelphia, PA, USA.

- 2017 Donhauser, P. W., Thomas, M, Morillon, B, Gracco, V, Baillet, S. *Predictive coding during natural speech listening studied using MEG and recurrent neural networks* Montreal Artificial Intelligence and Neuroscience Meeting, Montreal, QC, Canada.
- Speech entrainment across time scales: differential effects on low-frequency and beta oscillations.* Annual Meeting of the Organization for Human Brain Mapping, Vancouver, BC, Canada, June 2017.
- Mapping of distinct oscillatory sources in MEG despite imbalances in source power.* Annual Meeting of the Organization for Human Brain Mapping, Vancouver, BC, Canada, June 2017.
- 2016 *Parametric modelling of oscillatory sources in MEG.* 10th Annual CAN Meeting Canadian Association for Neuroscience, Toronto, ON, Canada, May 2016.
- 2015 Donhauser, P. W., Florin, E. & Baillet, S. *Spontaneous and stimulus-entrained cross-frequency coupling: spiking-neuron modelling and experimental results from human visual gamma oscillations.* QBIN scientific day, Montreal, QC, Canada.
- 2014 Donhauser, P. W., Florin, E. & Baillet, S. *Spontaneous and stimulus-entrained cross-frequency coupling: spiking-neuron modelling and experimental results from human visual gamma oscillations.* IPN retreat, Montreal, QC, Canada.
- Donhauser, P. W. & Baillet, S. *Local and long-range phase-amplitude coupling in a cortical spiking network model.* BMC Neuroscience 15. Suppl 1 (2014): P222.
- 2013 Donhauser, P. W., Coull, J., Leyton, M., He, Y., & Dagher, A. *Dopamine Precursor Depletion Alters Flexibility of Dynamic Network Structure in Resting-State fMRI.* 19th Annual Meeting of the Organization for Human Brain Mapping, Seattle, WA, USA, May 2013.
- 2012 Donhauser, P. W., Belin, P., Grosbras, M.-H. *Biasing the perception of ambiguous vocal affect: a TMS study on frontal asymmetry.* Magstim Neuroscience Conference, Oxford, United Kingdom, May 2012.
- Donhauser, P., Rösch, A., & Schultheiss, O. *The implicit need for power predicts fast recognition of subtle facial expressions of emotion.* 24th Annual Convention of the Association for Psychological Science, Chicago, IL, USA, May 2012.
- Donhauser, P. W., Grosbras, M.-H., Belin, P. *rTMS-study of Frontal Asymmetry in the Perception of Ambiguous Affective Vocalizations.* British Association of Cognitive Neuroscience Annual Meeting, Newcastle, United Kingdom, April 2012.

Invited talks

2025	<i>Feature codes across contexts, languages and people.</i> Campus Biotech, Geneva, Switzerland.
2024	<i>Neurophysiology of speech predictions at the sublexical level.</i> Symposium "Language Predictions across linguistic units", Psychologie und Gehirn, Hamburg, Germany.
2019	<i>Two distinct neural time scales for predictive speech processing.</i> Max Planck Institute for Empirical Aesthetics, Frankfurt, Germany.
2018	<i>Predictive speech processing in the brain.</i> Huawei Research, Montreal, QC, Canada.
	<i>Extraction of functionally defined spatial components: example from a natural speech experiment.</i> Biomagnetic signal analysis workshop, 21st International Conference on Biomagnetism, Philadelphia, PA, USA.
2015	<i>Optimal spatial filtering of MEG signals for studying neural oscillations.</i> IPN retreat, Montreal, QC, Canada.
	<i>Oscillatory Hierarchies: stimulus-induced vs. intrinsic mechanisms.</i> MEGMcGill Comprehensive Training, Montreal, QC, Canada.
2014	<i>Dynamics of cross-frequency coupling in the resting & active states.</i> Resting-state functional MRI workshop, Montreal, QC, Canada.
2013	<i>Effects of dopamine precursor depletion on dynamic network structure in resting-state fMRI.</i> IPN retreat, Montreal, QC, Canada

Awards

2019-2020	Richard & Edith Strauss postdoctoral fellowship	CAD 37,000
	McGill Faculty of Medicine competition	
2017-2018	Graduate Student fellowship from the Healthy Brains for Healthy Lives initiative	CAD 15,000
	Canada First Research Excellence Fund (CFREF)	
2017	QBIN Best Poster award	CAD 400
	Montreal Artificial Intelligence and Neuroscience meeting	
2016-2017	Jean Timmins Costello fellowship	CAD 10,000
	Montreal Neurological Institute competition	
2016	GREAT (Graduate research and training) travel award	CAD 500
	Integrated Program in Neuroscience	
2015-2016	Quebec Bioimaging Network (QBIN) fellowship	CAD 7,000
2015-2016	Gerald Clavet fellowship	CAD 12,000
	McGill Faculty of Medicine competition	
2014-2015	Max E. Binz fellowship	CAD 12,000
	McGill Faculty of Medicine competition	

2013-2014	IPN Graduate Excellence Award	CAD 20,000
	Integrated Program in Neuroscience	
2013	QBIN travel award	CAD 500
2012-2013	DAAD doctoral fellowship	EUR 22,000
	Deutscher Akademischer Auslandsdienst	
2012	IPN Recruitment Award	CAD 10,000
2012	Student/Young Scientist Bursary	GBP 150
	British Association of Cognitive Neuroscience	
2011	DAAD master fellowship	EUR 15,147

Ad-hoc Reviewer

Cognition and Emotion, Developmental Neuropsychology, Frontiers in Human Neuroscience, Human Brain Mapping, IEEE Transactions on Human-Machine Systems, Journal of Experimental Psychology: General, Motivation and Emotion, NeuroImage, Neurorehabilitation and Neural Repair, PLoS Biology, PLoS Computational Biology, PNAS, Psychological Review, Scientific Reports

Teaching

Seminar	Cognitive Psychology
	Undergraduate course, Goethe university, Frankfurt, Germany
Lecture	Computational Neuroscience (Oscillations & Connectivity)
	Graduate course, McGill University, prepared and corrected coding assignments
Workshop	Guided Ph.D & Post-doctoral researchers in a 1-week training of MEG paradigm design and analysis
	MEG@McGill Comprehensive Training, McGill, Canada (March & November 2015, November 2016)
Lecture	<i>Spectral analysis of neural signals</i> , 1-hour lecture to Ph.D & Post-doctoral researchers. Link to video
	MEG@McGill Comprehensive Training, McGill, Canada (March & November 2015, November 2016)
Lecture	<i>Statistics and Research methods in behavioural sciences</i> , 3-hour lecture to undergraduate students
	Psychology Summer School, University of Glasgow, UK (2012)

Programming skills

Python: 7 years of experience

Matlab: 9 years of experience

Javascript: 4 year of experience

Github profile

Languages

German (mother tongue)

English (fluent)

Bulgarian (conversational)

French (written understanding)

Clinical experience

- | | |
|-----------|---|
| 2007-2008 | 12-month full-time assistant in a rehabilitation and integration centre for people with mental disabilities.
Regnitzwerkstätten gGmbH, Erlangen, Germany |
| 2011 | 6-month part-time neuropsychological assistant in a stroke rehabilitation centre
Klinikum am Europakanal, Erlangen, Germany |

Last updated: January 27, 2026