
Peter W. Donhauser, Ph.D.

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Degrees

- 2013-2019 **Ph.D.** in Neuroscience, McGill University, Canada
Advisor: Sylvain Baillet
Title: Neural signatures of predictive coding in natural speech listening
- 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

- 2019- Postdoctoral fellow (Denise Klein lab), McGill University, Canada
- 2009-2011 Student research assistant (Oliver Schultheiss lab), Friedrich-Alexander Uni-
versity Erlangen-Nuremberg, Germany

Journal articles

- 2019 Donhauser, P. W. and Baillet, S. (2020). Two distinct neural time scales 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 ex-
pressions of emotion. *Motivation and Emotion*, 39(5):714–721
- 2014 Donhauser, P. W., Belin, P., and Grosbras, M.-H. (2014). Biasing the per-
ception of ambiguous vocal affect: a TMS study on frontal asymmetry. *Social
Cognitive and Affective Neuroscience*, 9(7):1046–1051

Conference presentations

- 2018 Donhauser, P. W., Baillet, S. *Electrophysiological signatures of predictive coding during natural speech listening.* 21st 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

- 2019 *Two distinct neural time scales for predictive speech processing*. Max Planck Institute for Empirical Aesthetics, Frankfurt, Germany.
- 2018 *Predictive speech processing in the brain*. Huawei Research, Montreal, QC, Canada.
- Extraction of functionally defined spatial components: example from a natural speech experiment*. Biomagnetic signal analysis workshop, 21st International Conference on Biomagnetism, Philadelphia, PA, USA.
- 2015 *Optimal spatial filtering of MEG signals for studying neural oscillations*. IPN retreat, Montreal, QC, Canada.
- Oscillatory Hierarchies: stimulus-induced vs. intrinsic mechanisms*. MEG@McGill Comprehensive Training, Montreal, QC, Canada.
- 2014 *Dynamics of cross-frequency coupling in the resting & active states*. Resting-state functional MRI workshop, Montreal, QC, Canada.
- 2013 *Effects of dopamine precursor depletion on dynamic network structure in resting-state fMRI*. IPN retreat, Montreal, QC, Canada.

Awards & Honours

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

Graduate courses

COMP 652	<i>Machine learning</i> with Prof. Doina Precup
NEUR 603	<i>Computational Neuroscience</i> with Prof. Christopher Pack
NEUR 630	<i>Principles of Neuroscience I: Cellular & molecular neuroscience</i>
NEUR 631	<i>Principles of Neuroscience II: Systems neuroscience</i>

Supervision

Rachel Murphy	<i>Pupil dilation as a marker of attention during speech processing</i> Summer internship (2019)
Michelle Wang	<i>Oscillatory markers of bottom-up and top-down processing of visual stimuli</i> Summer internship (2019)
Li-Yuan Chen	<i>Correlating heart rate fluctuations with MEG and behaviour</i> Honours research project (2014-2015)
Christine Cahaney	<i>Imaging deep striatal structures with MEG</i> Honours research project (2013-2014)

Ad-hoc Reviewer

Human Brain Mapping
 NeuroImage
 Frontiers in Human Neuroscience

Motivation and Emotion
Cognition and Emotion
Developmental Neuropsychology

Teaching

Lecture Computational Neuroscience (Oscillations & Connectivity)
Graduate course, 1-hour lecture, 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 *Spectral analysis of neural signals*, 1-hour lecture to Ph.D & Post-doctoral researchers. [Link to video](#)
MEG@McGill Comprehensive Training, McGill, Canada (March & November 2015, November 2016)

Lecture *Statistics and Research methods in behavioural sciences*, 3-hour lecture to undergraduate students
Psychology Summer School, University of Glasgow, UK (2012)

Programming skills

Matlab: 7 years of experience
Python: 5 years of experience
Javascript: 2 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

References

Sylvain Baillet
sylvain.baillet@mcgill.ca
Denise Klein
denise.klein@mcgill.ca
Pascal Belin
pascal.belin@univ-amu.fr

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