Curriculum Vitae

Prof. Dr. Dirk Ostwald, geboren am 02.12.1979 in Hamburg

Methodenlehre I: Experimentelle und Neurowissenschaftliche Psychologie
Institut für Psychologie
Fakultät für Naturwissenschaften
Otto-von-Guericke-Universität Magdeburg
Universitätsplatz 2 Gebäude 24
39106 Magdeburg
dirk.ostwald@ovgu.de

Webseite Google Scholar YouTube Publons

Beruflicher Werdegang

Seit 2021	Universitätsprofessor (W2) für Methodenlehre I: Methoden der experimentellen und neurowissenschaftlichen Psychologie, Otto-von-Guericke-Universtität Magdeburg, Fakultät für Naturwissenschaften, Institut für Psychologie
2020 - 2021	Universitätsprofessor (W2) für Computational Cognitive Neuroscience, Freie Universität Berlin, Fachbereich für Erziehungswissenschaft und Psychologie
2014 - 2020	Juniorprofessor (W1) für Computational Cognitive Neuroscience, Freie Universität Berlin, Fachbereich für Erziehungswissenschaft und Psychologie
2014 - 2020	Assoziierter Wissenschaftlicher Mitarbeiter, Max-Planck-Institut für Bildungsforschung, Center for Adaptive Rationality
2012 - 2014	Wissenschaftlicher Mitarbeiter, Max-Planck-Institut für Bildungsforschung, Center for Adaptive Rationality
2010 - 2012	Wissenschaftlicher Mitarbeiter, Bernstein Center for Computational Neuroscience Berlin, Junior Research Group Bioimaging
2003 - 2004	Wissenschaftlicher Mitarbeiter, Oklahoma Medical Research Foundation, Molecular, Cellular, and Developmental Program

Ausbildungstationen

2021	Berufung in das Beamtenverhältnis auf Lebenszeit als Universitätsprofessor
2020	Berufung in das Beamtenverhältnis auf Zeit als Universitätsprofessor
2017	Berufung in das Beamtenverhältnis auf Zeit als Juniorprofessur
2014	Berufung in das Beamtenverhältnis auf Zeit als Juniorprofessur
2012	Bachelor of Science in Mathematik
2005 - 2012	Studium der Mathematik, FernUniversität in Hagen
2010	Doctor of Philosophy, University of Birmingham
2007 - 2010	Promotionsstudium an der School of Psychology, University of Birmingham
2006	Master of Science in Neural and Behavioural Sciences
2004 - 2006	Studium der Neuro- und Verhaltenswissenschaften, Eberhard-Karls-Universität Tübingen
2003	Erster Abschnitt der Ärztlichen Prüfung
2002	Ärztliche Vorprüfung
2000 - 2003	Vorklinisches und theoretisch-klinisches Studium der Medizin, Universität Hamburg
1999 - 2000	Zivildienst
1999	Abitur am Gymnasium Marienthal, Hamburg

Stipendien und Preise

2017 - 2018	Förderung durch das Wikimedia Open Science Fellows Programm (5.000€) für das Projekt „Rechtliche und ethische Rahmenbedingungen zum offenen Austausch von Neuroimaging Daten in der Grundlagenforschung"
2016	Zentraler Lehrpreis der Freien Universität Berlin (10.000€) mit Dr. Ulf Tölch für ein Lehrprojekt zu „Digital Open Science"
2016	NeuroImage Editor's Choice Award für „Global signal modulation of single-trial fMRI response variability: effect on positive vs. negative BOLD response relationship" NeuroImage 133: 62–74
2007 - 2009	Promotionsstipendium, University of Birmingham (36.000£)
2001 - 2006	Stipendium der Studienstiftung des Deutschen Volkes (etwa 20.000€)

Drittmittelakquise

Seit 2019	DFG Sachbeihilfe (256.526€), Gemeinsamer Antragsteller mit Prof. Felix Blankenburg und Prof. Steffi Pohl, „Modalitätsspezifische und modalitätsübergreifende Mechanismen perzeptueller Entscheidungen"
Seit 2018	DFG Sachbeihilfe (269.630€), Gemeinsamer Antragssteller mit Prof. Klaus Obermayer, „Risikosensitive Entscheidungen und belohnungsabhängiges Lernen unter Unsicherheit"
2019	Berlin University Alliance OX/BER Research Partnership Anschubförderung (30.000€), Projektbeteiligung mit Prof. Ulrich Dirnagl, Prof. Laura Fortunato, und Prof. Dorothy Bishop, „Berlin-Oxford Summer School on Open and Reproducible Research"
2015 - 2016	Freie Universität Berlin Center for Research Strategy Anschubförderung (14.800€), Gemeinsamer Antragsteller mit Prof. Timo Schmid, „Improving statistical inference in big data sets with spatiotemporal structure"
2011 - 2013	Dr. Hadwen Trust Research Grant (134.151£), Postdoctoral research fellowship, Gemeinsamer Antragssteller mit Dr. Andrew Bagshaw, „Development and experimental validation of an information theoretic approach to the multimodal integration of human EEG and fMRI data"

Publikationsverzeichnis

Preprints

1. **Ostwald D**, Usée F (2021) An induction proof of the backpropagation algorithm in matrix notation *ArXiv* http://arxiv.org/abs/2107.09384
2. Bruckner R, Heekeren HR, Ostwald D (2020) Belief states and categorical-choice biases determine reward-based learning under perceptual uncertainty *BioRxiv* https://doi.org/10.1101/2020.09.18.303495
3. **Ostwald D**, Schneider S, Bruckner R, Horvath L (2019) Power, positive predictive value, and sample size calculations for random field theory-based fMRI inference *BioRxiv* https://doi.org/10.1101/613331
4. **Ostwald D**, Schneider S, Bruckner R, Horvath L (2018) Random field theory-based p-values: a review of the SPM implementation *ArXiv* https://arxiv.org/abs/1808.04075
5. Georgie YK, Porcaro C, Mayhew SD, Bagshaw AP, **Ostwald D** (2018) A perceptual decision-making EEG/fMRI data set *BioRxiv* https://doi.org/10.1101/253047

Journal Articles

1. Lindborg A, Musiolek L, **Ostwald D**, Rabovsky M (2023) Semantic surprise predicts the N400 brain potential. *NeuroImage: Reports* 3, 100161 https://doi.org/10.1016/j.ynirp.2023.100161
2. Horvath L, Colcombe S, Milham M, Ray S, Schwartenbeck P, **Ostwald, D** (2021) Human belief state-based exploration and exploitation in an information-selective reversal bandit task *Computational Brain and Behavior* 4, 442-462 https://doi.org/10.1007/s42113-021-00112-3
3. Gijsen S, Grundei M, Lange R, **Ostwald D**, Blankenburg F (2021) Neural surprise in somatosensory Bayesian learning *PLoS Computational Biology* 7(2):e1008068 https://doi.org/10.1371/journal.pcbi.1008068

Publikationsverzeichnis (fortgeführt)

4. Tisdall L, Frey R, Horn A, **Ostwald D**, Horvath L, Pedroni A, Rieskamp J, Blankenburg F, Hertwig R, Mata R (2020) Brain-behavior associations for risk taking depend on the measures used to capture individual differences *Frontiers in Behavioral Neuroscience* 14:587152 https://doi.org/10.3389/fnbeh.2020.587152
5. Krohn S, Froeling M, Leemans A, **Ostwald D**, Villoslada P, Finke C, Esteban FJ (2019) Evaluation of the 3D fractal dimension as a marker of structural brain complexity in multiple-acquisition MRI *Human Brain Mapping* 2019;1-22 https://doi.org/10.1002/hbm.24599
6. Toelch U, **Ostwald D** (2018) Digital Open Science – Teaching digital tools for reproducible and transparent research *PLoS Biology* 16(7): e2006022 https://doi.org/10.1371/journal.pbio.2006022
7. Starke L, **Ostwald D** (2017) Variational Bayesian parameter estimation techniques for the general linear model *Frontiers in Neuroscience* 11:504 https://doi:10.3389/fnins.2017.00504
8. Krohn S, **Ostwald D** (2017) Computing integrated information *Neuroscience of Consciousness* 3(1): nix017 https://doi.org/10.1093/nc/nix017
9. **Ostwald D**, Starke L (2016) Probabilistic delay differential equation modelling of event-related potentials *NeuroImage* 136: 227-257 https://doi.org/10.1016/j.neuroimage.2016.04.025
10. Mayhew S, Mullinger KJ, **Ostwald D**, Porcaro C, Bowtell R, Bagshaw AP, Francis ST (2016) Global signal modulation of single-trial fMRI response variability: effect on positive vs. negative BOLD response relationship *NeuroImage* 133: 62–74 https://doi.org/10.1016/j.neuroimage.2016.02.077
11. Rollings DT, Assecondi S, **Ostwald D**, Porcaro C, McCorry D, Bagary M, Soryal I, Bagshaw AP (2016) Early haemodynamic changes observed in patients with epilepsy, in a visual experiment and in simulations *Clinical Neurophysiology* 127: 245-253 https://doi.org/10.1016/j.clinph.2015.07.008
12. **Ostwald D**, Starke L, Hertwig R (2015) A normative inference approach for optimal sample sizes in decisions from experience *Frontiers in Psychology* 6:1342 https://doi.org/10.3389/fpsyg.2015.01342
13. Assecondi S, **Ostwald D**, Bagshaw AP (2015) Reliability of information-based integration of EEG and fMRI data: a simulation study *Neural Computation* 27(2): 281-305 https://doi.org/10.1162/NECO_a_00695
14. Horn AG, **Ostwald D**, Reisert M, Blankenburg F (2014) The Structural-Functional Connectome and the Default Network of the Human Brain *NeuroImage* 102: 142–151 https://doi.org/10.1016/j.neuroimage.2013.09.069
15. Schmidt TT, **Ostwald D**, Blankenburg F (2014) Imaging tactile imagery: Changes in brain connectivity support perceptual grounding of mental images in primary sensory cortices *NeuroImage* 98: 216–224 https://doi.org/10.1016/j.neuroimage.2014.05.014
16. **Ostwald D**, Kirilina E, Starke L, Blankenburg F (2014) A tutorial on variational Bayes for latent linear stochastic time-series models *Journal of Mathematical Psychology* 60, 1–19 https://doi.org/10.1016/j.jmp.2014.04.003
17. Herzog SM, **Ostwald D** (2013) Sometimes Bayesian statistics are better *Nature* 494(7435):35 https://doi.org/10.1038/494035b
18. Mayhew SD, **Ostwald D**, Porcaro C, Bagshaw AP (2013) Spontaneous EEG alpha oscillation interacts with positive and negative BOLD responses in the visual-auditory cortices and default-mode network *NeuroImage* 76: 362–372 https://doi.org/10.1016/j.neuroimage.2013.02.070
19. **Ostwald D**, Spitzer B, Guggenmos B, Schmidt T, Kiebel S, Blankenburg F (2012) Evidence for neural encoding of Bayesian surprise in human somatosensation *NeuroImage* 1;62(1):177-88 https://doi.org/10.1016/j.neuroimage.2012.04.050
20. **Ostwald D**, Porcaro C, Mayhew SD, Bagshaw AP (2012) EEG-fMRI based information theoretic characterization of the human perceptual decision system *PLoS ONE* 7(4): e33896 https://doi.org/10.1371/journal.pone.0033896
21. Lei X, **Ostwald D**, Hu J, Qiu C, Porcaro C, Bagshaw AP, Yao D (2011) Multimodal functional network connectivity: an EEG-fMRI fusion in network space *PLoS ONE* 6(9):e24642 https://doi.org/10.1371/journal.pone.0024642
22. **Ostwald D**, Bagshaw AP (2011) Information theoretic approaches to functional neuroimaging *Magnetic Resonance Imaging* 29:1417-1428 https://doi.org/10.1016/j.mri.2011.07.013

Publikationsverzeichnis (fortgeführt)

23. Porcaro C, **Ostwald D**, Hadjipapas A, Barnes GA, Bagshaw AP (2011) The relationship between the visual evoked potential and the gamma band investigated by blind and semi-blind methods *NeuroImage* 56(3):1059-71 https://doi.org/10.1016/j.neuroimage.2011.03.008
24. **Ostwald D**, Porcaro C, Bagshaw AP (2011) Voxel-wise information theoretic EEG-fMRI feature integration *NeuroImage* 55(3):1270-86 https://doi.org/10.1016/j.neuroimage.2010.12.029
25. Noppeney U, **Ostwald D**, Werner S (2010) Perceptual decisions formed by accumulation of audiovisual evidence in prefrontal cortex *Journal of Neuroscience* 30(21):7434-46 https://doi.org/10.1523/JNEUROSCI.0455-10.2010
26. Wühle A, Mertiens L, Rüter J, **Ostwald D**, Braun C (2010) Cortical processing of near-threshold tactile stimuli – an MEG study *Psychophysiology* 47: 523–534 doi:10.1111/j.1469-8986.2010.00964.x.
27. Porcaro C, **Ostwald D**, Bagshaw AP (2010) Functional source separation improves the quality of single trial visual evoked potentials recorded during concurrent EEG-fMRI *NeuroImage* 50: 12–123 https://doi.org/10.1016/j.neuroimage.2009.12.002
28. **Ostwald D**, Porcaro C, Bagshaw AP (2010) An information theoretic approach to EEG-fMRI integration of visually evoked responses *NeuroImage* 49: 498 – 516 https://doi.org/10.1016/j.neuroimage.2009.07.038
29. **Ostwald D**, Lam J, Li S, Kourtzi Z (2008) Neural coding of global form in the human visual cortex *Journal of Neurophysiology* 99:2456-2469 https://doi.org/10.1152/jn.01307.2007
30. Li S, **Ostwald D**, Giese M, Kourtzi Z (2007) Flexible coding for categorical decisions in the human brain *Journal of Neuroscience* 27(45):12321-30 https://doi.org/10.1523/JNEUROSCI.3795-07.2007
31. Karpac J, **Ostwald D**, Bui S, Hunnewell P, Hochgeschwender U (2006) Proopiomelanocortin heterozygous and homozygous null mutant mice develop pituitary adenomas *Cellular and Molecular Biology (Noisy-le-grand)* 30;52(2):47-52 https://doi.org/10.1170/T692
32. **Ostwald D**, Karpac J, Hochgeschwender U (2006) Effects on hippocampus of lifelong absence of glucocorticoids in the proopiomelanocortin null mutant mouse reveal complex relationships between glucocorticoids and hippocampal structure and function *Journal of Molecular Neuroscience* 28(3):291-302 https://doi.org/10.1385/JMN:28:3:291
33. Karpac J, **Ostwald D**, Bui S, Hunnewell P, Shankar M, Hochgeschwender U (2005) Development, maintenance, and function of the adrenal gland in early postnatal proopiomelanocortin-null mutant mice *Endocrinology* 146(6):2555-62 https://doi.org/10.1210/en.2004-1290

Lektorat

Gutachterprofil	https://publons.com/researcher/1394171/dirk-ostwald/
Editorial Boards	PLoS ONE, Frontiers in Neuroinformatics, Frontiers in Human Neuroscience
Adhoc Reviews	PNAS, Cerebral Cortex, NeuroImage, Human Brain Mapping, Journal of Mathematical Psychology, Neural Computation, Scientific Reports, Frontiers in Artificial Intelligence, Frontiers in Human Neuroscience, Frontiers in Computational Neuroscience, Frontiers in Psychology, European Journal of Neuroscience, PLoS ONE, Cortex, Psychophysiology, Neurocomputing, Journal of Neural Engineering, Psychonomic Bulletin & Review, Psychiatry Research: Neuroimaging, Artificial Intelligence in Medicine, Cognitive Neurodynamics, Mathematical Biosciences, BioMed Research International, Entropy, Neuroinformatics (insgesamt etwa 90 Adhoc Reviews seit 2012)
Gesellschaften	The Royal Society, Hong Kong Research Grant Council, UK Medical Research Council, Netherlands Organization for Scientific Research, Wikimedia Deutschland Open Science Fellows Program, Stiftung Charité, Studienstiftung des Deutschen Volkes, Alexander von Humboldt-Stiftung
Konferenzen	Cognitive Computational Neuroscience

Ausgewählte Vorträge

2021	„Human belief state-based exploration and exploitation in an information-selective reversal bandit task", Leibniz Institute for Neurobiology „Human belief state-based exploration and exploitation in an information-selective reversal bandit task", EPFL Neuro Symposium on Surprise, Curiosity and Reward: from Neuroscience to AI
2020	Stellungnahme und Diskussion zum Antrag „Gute wissenschaftliche Praxis und wissenschaftliche Integrität stärken: Eine interdisziplinäre Netzwerkstelle für „Open Science" und „Research Quality" aufbauen und dauerhaft etablieren", Anhörung der 56. Sitzung des Ausschuss für Wissenschaft und Forschung des Abgeordnetenhauses von Berlin „Gedankenlesen mit künstlicher Intelligenz", Digitale Sommeruniversität der Freien Universität Berlin „Computational Cognitive Neuroscience", Ringvorlesung Kognitive Neurowissenschaften, Humboldt Universität Berlin
2019	„Reproducibility, Trust, and Open Data", Symposium on the reproducibility crisis in psychiatric research, German Association for Psychiatry, Psychotherapy, and Psychosomatics Congress (DGPPN 2019) „The neurocomputational mechanisms of human sequential decision making under uncertainty in a spatial search task", CBS CoCoNUT Seminar, Max-Planck Institute for Human Cognitive and Brain Sciences „Sustainability and transparency in computational cognitive neuroscience", CBS Open Science Kickoff Workshop, Max-Planck Institute for Human Cognitive and Brain Sciences „Open Science" Nature Research Live Berlin, Panel Discussion
2018	„AI-driven Support in Healthcare – Beyond the Buzzwords", Berlin Institute of Health, Digital Health Forum, Panel Discussion „Open Neuroimaging", 7th Winter School Ethics and Neuroscience of the Bernstein Center for Computational Neuroscience Berlin and the Berlin School of Mind and Brain
2017	„Workshop Open Science", International Max Planck Research School LIFE und Psychologisches Institut, Universität Zürich
2015	„An information theoretic approach for EEG-fMRI integration", Symposium talk on EEG-fMRI feature matching, 10th International Conference on Basic and Clinical Multimodal Imaging (BACI 2015) „Variational inference", NeuroBioTheory seminar talk, Frankfurt Institute for Advanced Studies and Max-Planck-Institute for Brain Research/Goethe University Frankfurt
2014	„On the neural dynamics of Bayesian model updating in the somatosensory system", 20th Annual meeting of the Organization for Human Brain Mapping (OHBM 2014)

Lehrveranstaltungen

Otto-von-Guericke Universität Magdeburg

Seit 2021 — Aktuelles Lehrportfolio (8 SWS)

Modulverantwortlichkeiten BSc Psychologie
- Modul A2 Einführung psychologische Forschungsmethoden
- Modul B1 Deskriptive Statistik
- Modul B2 Inferenzstatistik
- Modul C Einführung empirisch-wissenschaftliches Arbeiten

Modulverantwortlichkeit MSc Psychologie
- Modul A Forschungsmethoden

Lehrveranstaltungen (fortgeführt)

Freie Universität Berlin

WiSe 2020/2021	MSc Data Science Vorlesung: Statistics for Data Science (2 SWS) MSc Data Science Übung: Statistics for Data Science (2 SWS) MSc SCAN* Vorlesung: Statistical Methods (2 SWS) MSc SCAN Vorlesung: Neurocognitive Methods and Programming (2 SWS) *Social, Cognitive, and Affective Neuroscience
SoSe 2020	MSc SCAN Seminar: Statistical Methods (2 SWS) MSc SCAN Seminar: Neurocognitive Methods and Programming (2 SWS)
WiSe 2019/2020	MSc Data Science Vorlesung: Statistics for Data Science (2 SWS) MSc Data Science Übung: Statistics for Data Science (2 SWS) MSc SCAN Vorlesung: Statistical Methods (2 SWS) MSc SCAN Vorlesung: Neurocognitive Methods and Programming (2 SWS) BSc Bioinformatics Vorlesung: Neuroinfomatics (3 x 2 Stunden)
SoSe 2019	MSc SCAN Seminar: Statistical Methods (2 SWS) MSc SCAN Seminar: Neurocognitive Methods and Programming (2 SWS) MSc Psychologie Seminar: Decision Neuroscience (2 SWS)
WiSe 2018/2019	MSc SCAN Vorlesung: Statistical Methods (2 SWS) MSc SCAN Vorlesung: Neurocognitive Methods and Programming (2 SWS)
SoSe 2018	MSc SCAN Seminar: Statistical Methods (2 SWS) MSc SCAN Seminar: Neurocognitive Methods and Programming (2 SWS)
WiSe 2017/2018	MSc SCAN Vorlesung: Statistical Methods (2 SWS) MSc SCAN Vorlesung: Neurocognitive Methods and Programming (2 SWS) BSc Psychologie Seminar: Neurokognition der Entscheidungsfindung (2 SWS)
SoSe 2017	MSc SCAN Seminar: Statistical Methods (2 SWS) MSc SCAN Übung: Neurocognitive Methods and Programming (2 SWS) MSc Psychologie Seminar: Digital Open Science (2 SWS mit Dr. Ulf Toelch)
WiSe 2016/2017	MSc SCAN Vorlesung: Statistical Methods (2 SWS) MSc SCAN Vorlesung: Neurocognitive Methods and Programming (2 SWS)
SoSe 2016	MSc SCAN Seminar: Statistical Methods (2 SWS) MSc SCAN Übung: Neurocognitive Methods and Programming (2 SWS)
WiSe 2015/2016	MSc SCAN Vorlesung: Statistical Methods (2 SWS) MSc SCAN Vorlesung: Neurocognitive Methods and Programming (2 SWS)
SoSe 2015	MSc SCAN Seminar: Statistical Methods (2 SWS) MSc SCAN Seminar: Applied Programming (2 SWS)
WiSe 2014/2015	MSc SCAN Seminar: Statistical Methods (2 SWS) MSc SCAN Seminar: Applied Programming (2 SWS)
SoSe 2014	MSc SCAN Übung: Statistical Methods (Lehrauftrag, 2 SWS)
WiSe 2013/2014	MSc SCAN Seminar: Statistical Methods (Lehrauftrag, 2 SWS)
WiSe 2011/2012	MSc SCAN Seminar: Advanced Neurocognitive Methods (2 SWS)

Universität Basel

WiSe 2015/2016	MSc Psychologie Seminar: Neuroeconomics (Lehrauftrag, 2 SWS)

Bernstein Center for Computational Neuroscience Berlin

WiSe 2010/2011	MSc Computational Neuroscience: Acquisition and Analysis of Neural Data

Lehrveranstaltungen (fortgeführt)

University of Birmingham

SoSe 2010	Teaching Instructor (50% Stelle) an der School of Psychology zur Unterstützung der Lehre im Bachelor- und Masterstudiengang Psychologie in den Bereichen Statistik, Biologische Psychologie, Kognitive Psychologie und Studierendenmentoring
WiSe 2009/2010	Teaching Instructor (50% Stelle) an der School of Psychology zur Unterstützung der Lehre in Bachelor- und Masterstudiengängen in den Bereichen Statistik und Kognitive Psychologie
SoSe 2009	Teaching Assistant zur Unterstützung der Lehre im Bachelorstudiengang Psychologie in den Bereichen Statistik und Kognitive Psychologie
WiSe 2008/2009	Teaching Assistant zur Unterstützung der Lehre im Bachelorstudiengang Psychologie in den Bereichen Statistik und Kognitive Psychologie

Akademien

Seit 2020	Lebenswissenschaftliches Kolleg der Studienstiftung des Deutschen Volkes zum Thema Lernen und Gedächtnis in Zusammenarbeit mit Prof. Tömme Noesselt
Seit 2018	Organisation und Lehre der Berlin|Oxford Summer School on Open, Transparent, and Reproducible Research in the Life Sciences
SoSe 2007	Sommerakademie der Studienstiftung des Deutschen Volkes in Rot an der Rot zum „Free Energy Principle" in Zusammenarbeit mit Prof. Felix Blankenburg
WiSe 2015/2016	Interdisciplinary College in Günne at Lake Möhne (IK 2015) Kurs „The Free Energy Principle for Perception: An Introduction".

Qualifikationsarbeiten

Dissertationen

Seit 2022	Belinda Fleischmann (Erstbetreuung)
Seit 2019	Arsham Afsardeir (Zweitbetreuung)
2015 - 2021	Lilla Horvath (Erstbetreuung)
2015 - 2020	Rasmus Bruckner (Zweitbetreuung)
2014 - 2018	Kathrin Tertel (Zweitbetreuung)

Dissertationsgutachten und Kommissionsmitgliedschaften

2023	Dr. Alexander Weuthen, Otto-von-Guericke-Universität Magdeburg Dr. Camila Agostino, Otto-von-Guericke-Universität Magdeburg
2020	Dr. Vasiliki Liakoni, EPLF Dr. Alan Tump, Max-Planck-Institut für Bildungsforschung Dr. Veronika Zilker, Max-Planck-Institut für Bildungsforschung (Zweitgutachten)
2019	Dr. Friederike Irmen, Freie Universität Berlin Dr. Isil Ushul, Freie Universität Berlin Dr. Horst Alexander von Lautz, Freie Universität Berlin Dr. Vahid Rahmati, Technische Universität Dresden (Zweitgutachten)
2018	Dr. Kathrin Tertel, Freie Universität Berlin (Zweitgutachten) Dr. Robert Ullrich, Freie Universität Berlin Dr. Kai Zhuang, Freie Universität Berlin Dr. Timo Torsten Schmidt, Freie Universität Berlin

Qualifikationsarbeiten (fortgeführt)

2017	Dr. Julia Huntenburg, Freie Universität Berlin Dr. Joram Soch, Humboldt-Universität zu Berlin (Drittgutachten) Dr. Jan Herding, Freie Universität Berlin Dr. Shuang Guo, Freie Universität Berlin (Zweitgutachten) Dr. Julia Rodriguez Buritica, Freie Universität Berlin Dr. Tim Genewein, Eberhard-Karls-Universität Tübingen (Drittgutachten) Dr. Simon Ludwig, Freie Universität Berlin
2016	Dr. Johannes Freiherr Heereman von Zuydtwyck, Freie Universität Berlin Dr. Clemens Maidhof, Freie Universität Berlin (Zweitgutachten)
2015	Dr. Jakub Limanowski, Freie Universität Berlin Dr. Yulia Oganian, Freie Universität Berlin Dr. Yan Fan, Freie Universität Berlin
2014	Dr. Chun-Ting Tsu, Freie Universität Berlin

PhD Advisory Committees

2014 - 2018	Timo Torsten Schmidt, Graduiertenkolleg Sensory Systems, Berlin
2014 - 2017	Jan Herding, Bernstein Center for Computational Neuroscience, Berlin

Master- und Diplomarbeiten (nur Erstbetreuung)

Seit 2022	Maximilian Amaya Carmona (MSc Psychologie, Otto-von-Guericke-Universität Magdeburg)
2020 - 2022	Belinda Fleischmann (MSc SCAN, Freie Universität Berlin)
2019 - 2022	Sara Bonati (MSc SCAN, Freie Universität Berlin)
2019 - 2020	Janis Keck (MSc SCAN, Freie Universität Berlin)
2018 - 2020	Nadine Spychalla (Philosophie, Carl von Ossietzky Universität Oldenburg) Anna Gunia (MSc SCAN, Freie Universität Berlin)
2016 - 2019	Yasmin Kim Georgie (MSc SCAN, Freie Universität Berlin) Sein Yeung (MSc SCAN, Freie Universität Berlin)
2017 - 2018	Sebastian Schneider (MSc SCAN, Freie Universität Berlin) Elena Pavlenko (MSc SCAN, Freie Universität Berlin)
2016 - 2017	Stefan Appelhoff (MSc SCAN, Freie Universität Berlin)
2015 - 2016	Stephan Krohn (MSc SCAN, Freie Universität Berlin) Martin Spitzenpfeil (MSc Statistics, Humboldt-Universität zu Berlin)
2014 - 2015	Lilla Horvath (Psychologie, Humboldt-Universität zu Berlin)

Bachelorarbeiten (nur Erstbetreuung)

2020 - 2021	Julia Pilarski (Psychologie, Freie Universität Berlin)
2017 - 2018	Jonas Schäfer (Physik, Humboldt-Universität zu Berlin)

Verwaltungstätigkeit

Kommissionsleitung

Seit 2022	Vorsitzender des Prüfungsausschuss Psychologie der Fakultät für Naturwissenschaften, Otto-von-Guericke-Universität Magdeburg
Seit 2022	Studiengangsleitung BSc Psychologie der Fakultät für Naturwissenschaften, Otto-von-Guericke-Universität Magdeburg
2020 - 2021	Stellvertretender Vorsitzender des Prüfungsausschuss MSc Data Science der Fachbereiche Mathematik und Informatik und Erziehungswissenschaft und Psychologie, Freie Universität Berlin
2018 - 2021	Stellvertretender Vorsitzender der Gemeinsamen Kommission MSc Data Science der Fachbereiche Mathematik und Informatik und Erziehungswissenschaft und Psychologie, Freie Universität Berlin
2015 - 2021	Vorsitzender des Prüfungsausschusses MSc Social, Cognitive, and Affective Neuroscience, Fachbereich Erziehungswissenschaft und Psychologie, Freie Universität Berlin

Verwaltungstätigkeit (fortgeführt)

Kommissionsmitgliedschaften

2019 - 2021	Self-Steering Committee der FU UNA Gruppe zum Thema Data Science
2019 - 2021	Prüfungsausschuss MSc Data Science der Fachbereiche Mathematik und Informatik und Erziehungswissenschaft und Psychologie, Freie Universität Berlin
2018 - 2021	Gemeinsame Kommission MSc Data Science der Fachbereiche Mathematik und Informatik und Erziehungswissenschaft und Psychologie, Freie Universität Berlin
2014 - 2021	Prüfungsausschuss MSc Social, Cognitive, and Affective Neuroscience, Fachbereich Erziehungswissenschaft und Psychologie, Freie Universität Berlin
2019 - 2020	Berufungskommission W3 Professur Künstliche Intelligenz, Institut für Informatik, Freie Universität Berlin
2019	Berufungskommission W3 Professur für Sozial-, Organisations- und Wirtschaftspsychologie, Fachbereich Erziehungswissenschaft und Psychologie, Freie Universität Berlin

Curriculum Vitae (English)

Prof. Dr. Dirk Ostwald | Born December 2nd 1979 Hamburg, Germany

Research Methods I: Experimental and Neuroscientific Psychology
Institute of Psychology
Faculty of Natural Sciences
Otto-von-Guericke-Universität Magdeburg
Universitätsplatz 2 Gebäude 24
39106 Magdeburg
dirk.ostwald@ovgu.de

Website Google Scholar YouTube Publons

Professional History

Since 2021	Professor for Research Methods I: Experimental and Neuroscientific Psychology, Otto-von-Guericke-Universtität Magdeburg, Faculty of Natural Sciences, Institute of Psychology
2020 - 2021	Professor for Computational Cognitive Neuroscience, Freie Universität Berlin, Department of Education and Psychology
2014 - 2020	Assistant Professor for Computational Cognitive Neuroscience, Freie Universität Berlin, Department of Education and Psychology
2012 - 2014	Research Associate, Max Planck Institut for Human Development Center for Adaptive Rationality
2010 - 2012	Research Associate, Bernstein Center for Computational Neuroscience Berlin, Junior Research Group Bioimaging
2003 - 2004	Research Associate, Oklahoma Medical Research Foundation, Molecular, Cellular, and Developmental Program

Appointments and Education

2021	Professor (W2 permanent)
2020	Professor (W2 fixed-term)
2017	Professor (W1 fixed-term)
2014	Professor (W1 fixed-term)
2012	BSc Mathematics
2005 - 2012	Mathematical Studies, FernUniversität in Hagen, Germany's State Distance-Learning University
2010	PhD, University of Birmingham, UK
2007 - 2010	Doctoral Studies, School of Psychology, University of Birmingham
2006	MSc Neural and Behavioural Sciences
2004 - 2006	Studies of Neuro- and Behavioural Sciences, Eberhard-Karls-Universität Tübingen
2003	First Part Medical Examination
2002	Preliminary Medical Examination
2000 - 2003	Preclinincal and Theoretical-clinical Medical Studies, Universität Hamburg
1999 - 2000	Compulsory Civilian Service
1999	Higher Education Entrance Qualification, Gymnasium Marienthal, Hamburg

Fellowships and Awards

2017 - 2018	Wikimedia Open Science Fellows Programm (5.000€) for a project on the legal and ethical foundations for basic research neuroimaging data sharing.
2016	Central Teaching Award of Freie Universität Berlin (10.000€) with Dr. Ulf Tölch for an MSc level course on „Digital Open Science"

Fellowships and Awards (continued)

2016	NeuroImage Editor's Choice Award for „Global signal modulation of single-trial fMRI response variability: effect on positive vs. negative BOLD response relationship" NeuroImage 133: 62–74
2007 - 2009	Graduate studies fellowship, University of Birmingham ($\approx$ 36.000£)
2001 - 2006	German Academic Scholarship Foundation ($\approx$ 20.000€)

Research Grants

Seit 2019	DFG Research Grant (256.526€) with Prof. Felix Blankenburg and Prof. Steffi Pohl, „Modality-specific and modality-general mechanisms of perceptual decision making"
Since 2019	DFG Research Grant (269.630€) with Prof. Klaus Obermayer, „Risk-sensitive choice and reinforcement learning under uncertainty"
2019	Berlin University Alliance OX/BER Research Partnership Anschubförderung (30.000€) with Prof. Ulrich Dirnagl, Prof. Laura Fortunato, and Prof. Dorothy Bishop, „Berlin-Oxford Summer School on Open and Reproducible Research"
2015 - 2016	Freie Universität Berlin Center for Research Grant (14.800€) with Prof. Timo Schmid, „Improving statistical inference in big data sets with spatiotemporal structure"
2011 - 2013	Dr. Hadwen Trust Research Grant (134.151£) with Dr. Andrew Bagshaw, Postdoctoral research fellowship, „Development and experimental validation of an information theoretic approach to the multimodal integration of human EEG and fMRI data"

Publications

Preprints

1. **Ostwald D**, Usée F (2021) An induction proof of the backpropagation algorithm in matrix notation *ArXiv* http://arxiv.org/abs/2107.09384
2. Bruckner R, Heekeren HR, Ostwald D (2020) Belief states and categorical-choice biases determine reward-based learning under perceptual uncertainty *BioRxiv* https://doi.org/10.1101/2020.09.18.303495
3. **Ostwald D**, Schneider S, Bruckner R, Horvath L (2019) Power, positive predictive value, and sample size calculations for random field theory-based fMRI inference *BioRxiv* https://doi.org/10.1101/613331
4. **Ostwald D**, Schneider S, Bruckner R, Horvath L (2018) Random field theory-based p-values: a review of the SPM implementation *ArXiv* https://arxiv.org/abs/1808.04075
5. Georgie YK, Porcaro C, Mayhew SD, Bagshaw AP, **Ostwald D** (2018) A perceptual decision-making EEG/fMRI data set *BioRxiv* https://doi.org/10.1101/253047

Journal Articles

1. Lindborg A, Musiolek L, **Ostwald D**, Rabovsky M (2023) Semantic surprise predicts the N400 brain potential. *NeuroImage: Reports* 3, 100161 https://doi.org/10.1016/j.ynirp.2023.100161
2. Horvath L, Colcombe S, Milham M, Ray S, Schwartenbeck P, **Ostwald, D** (2021) Human belief state-based exploration and exploitation in an information-selective reversal bandit task *Computational Brain and Behavior* 4, 442-462 https://doi.org/10.1007/s42113-021-00112-3
3. Gijsen S, Grundei M, Lange R, **Ostwald D**, Blankenburg F (2021) Neural surprise in somatosensory Bayesian learning *PLoS Computational Biology* 7(2):e1008068 https://doi.org/10.1371/journal.pcbi.1008068
4. Tisdall L, Frey R, Horn A, **Ostwald D**, Horvath L, Pedroni A, Rieskamp J, Blankenburg F, Hertwig R, Mata R (2020) Brain-behavior associations for risk taking depend on the measures used to capture individual differences *Frontiers in Behavioral Neuroscience* 14:587152 https://doi.org/10.3389/fnbeh.2020.587152
5. Krohn S, Froeling M, Leemans A, **Ostwald D**, Villoslada P, Finke C, Esteban FJ (2019) Evaluation of the 3D fractal dimension as a marker of structural brain complexity in multiple-acquisition MRI *Human Brain Mapping* 2019;1-22 https://doi.org/10.1002/hbm.24599

Publications (continued)

6. Toelch U, **Ostwald D** (2018) Digital Open Science – Teaching digital tools for reproducible and transparent research *PLoS Biology* 16(7): e2006022 https://doi.org/10.1371/journal.pbio.2006022
7. Starke L, **Ostwald D** (2017) Variational Bayesian parameter estimation techniques for the general linear model *Frontiers in Neuroscience* 11:504 https://doi:10.3389/fnins.2017.00504
8. Krohn S, **Ostwald D** (2017) Computing integrated information *Neuroscience of Consciousness* 3(1): nix017 https://doi.org/10.1093/nc/nix017
9. **Ostwald D**, Starke L (2016) Probabilistic delay differential equation modelling of event-related potentials *NeuroImage* 136: 227-257 https://doi.org/10.1016/j.neuroimage.2016.04.025
10. Mayhew S, Mullinger KJ, **Ostwald D**, Porcaro C, Bowtell R, Bagshaw AP, Francis ST (2016) Global signal modulation of single-trial fMRI response variability: effect on positive vs. negative BOLD response relationship *NeuroImage* 133: 62–74 https://doi.org/10.1016/j.neuroimage.2016.02.077
11. Rollings DT, Assecondi S, **Ostwald D**, Porcaro C, McCorry D, Bagary M, Soryal I, Bagshaw AP (2016) Early haemodynamic changes observed in patients with epilepsy, in a visual experiment and in simulations *Clinical Neurophysiology* 127: 245-253 https://doi.org/10.1016/j.clinph.2015.07.008
12. **Ostwald D**, Starke L, Hertwig R (2015) A normative inference approach for optimal sample sizes in decisions from experience *Frontiers in Psychology* 6:1342 https://doi.org/10.3389/fpsyg.2015.01342
13. Assecondi S, **Ostwald D**, Bagshaw AP (2015) Reliability of information-based integration of EEG and fMRI data: a simulation study *Neural Computation* 27(2): 281-305 https://doi.org/10.1162/NECO_a_00695
14. Horn AG, **Ostwald D**, Reisert M, Blankenburg F (2014) The Structural-Functional Connectome and the Default Network of the Human Brain *NeuroImage* 102: 142–151 https://doi.org/10.1016/j.neuroimage.2013.09.069
15. Schmidt TT, **Ostwald D**, Blankenburg F (2014) Imaging tactile imagery: Changes in brain connectivity support perceptual grounding of mental images in primary sensory cortices *NeuroImage* 98: 216–224 https://doi.org/10.1016/j.neuroimage.2014.05.014
16. **Ostwald D**, Kirilina E, Starke L, Blankenburg F (2014) A tutorial on variational Bayes for latent linear stochastic time-series models *Journal of Mathematical Psychology* 60, 1–19 https://doi.org/10.1016/j.jmp.2014.04.003
17. Herzog SM, **Ostwald D** (2013) Sometimes Bayesian statistics are better *Nature* 494(7435):35 https://doi.org/10.1038/494035b
18. Mayhew SD, **Ostwald D**, Porcaro C, Bagshaw AP (2013) Spontaneous EEG alpha oscillation interacts with positive and negative BOLD responses in the visual-auditory cortices and default-mode network *NeuroImage* 76: 362–372 https://doi.org/10.1016/j.neuroimage.2013.02.070
19. **Ostwald D**, Spitzer B, Guggenmos B, Schmidt T, Kiebel S, Blankenburg F (2012) Evidence for neural encoding of Bayesian surprise in human somatosensation *NeuroImage* 1;62(1):177-88 https://doi.org/10.1016/j.neuroimage.2012.04.050
20. **Ostwald D**, Porcaro C, Mayhew SD, Bagshaw AP (2012) EEG-fMRI based information theoretic characterization of the human perceptual decision system *PLoS ONE* 7(4): e33896 https://doi.org/10.1371/journal.pone.0033896
21. Lei X, **Ostwald D**, Hu J, Qiu C, Porcaro C, Bagshaw AP, Yao D (2011) Multimodal functional network connectivity: an EEG-fMRI fusion in network space *PLoS ONE* 6(9):e24642 https://doi.org/10.1371/journal.pone.0024642
22. **Ostwald D**, Bagshaw AP (2011) Information theoretic approaches to functional neuroimaging *Magnetic Resonance Imaging* 29:1417-1428 https://doi.org/10.1016/j.mri.2011.07.013
23. Porcaro C, **Ostwald D**, Hadjipapas A, Barnes GA, Bagshaw AP (2011) The relationship between the visual evoked potential and the gamma band investigated by blind and semi-blind methods *NeuroImage* 56(3):1059-71 https://doi.org/10.1016/j.neuroimage.2011.03.008
24. **Ostwald D**, Porcaro C, Bagshaw AP (2011) Voxel-wise information theoretic EEG-fMRI feature integration *NeuroImage* 55(3):1270-86 https://doi.org/10.1016/j.neuroimage.2010.12.029

Publications (continued)

25. Noppeney U, **Ostwald D**, Werner S (2010) Perceptual decisions formed by accumulation of audiovisual evidence in prefrontal cortex *Journal of Neuroscience* 30(21):7434-46 https://doi.org/10.1523/JNEUROSCI.0455-10.2010
26. Wühle A, Mertiens L, Rüter J, **Ostwald D**, Braun C (2010) Cortical processing of near-threshold tactile stimuli – an MEG study *Psychophysiology* 47: 523–534 doi:10.1111/j.1469-8986.2010.00964.x.
27. Porcaro C, **Ostwald D**, Bagshaw AP (2010) Functional source separation improves the quality of single trial visual evoked potentials recorded during concurrent EEG-fMRI *NeuroImage* 50: 12–123 https://doi.org/10.1016/j.neuroimage.2009.12.002
28. **Ostwald D**, Porcaro C, Bagshaw AP (2010) An information theoretic approach to EEG-fMRI integration of visually evoked responses *NeuroImage* 49: 498 – 516 https://doi.org/10.1016/j.neuroimage.2009.07.038
29. **Ostwald D**, Lam J, Li S, Kourtzi Z (2008) Neural coding of global form in the human visual cortex *Journal of Neurophysiology* 99:2456-2469 https://doi.org/10.1152/jn.01307.2007
30. Li S, **Ostwald D**, Giese M, Kourtzi Z (2007) Flexible coding for categorical decisions in the human brain *Journal of Neuroscience* 27(45):12321-30 https://doi.org/10.1523/JNEUROSCI.3795-07.2007
31. Karpac J, **Ostwald D**, Bui S, Hunnewell P, Hochgeschwender U (2006) Proopiomelanocortin heterozygous and homozygous null mutant mice develop pituitary adenomas *Cellular and Molecular Biology (Noisy-le-grand)* 30;52(2):47-52 https://doi.org/10.1170/T692
32. **Ostwald D**, Karpac J, Hochgeschwender U (2006) Effects on hippocampus of lifelong absence of glucocorticoids in the proopiomelanocortin null mutant mouse reveal complex relationships between glucocorticoids and hippocampal structure and function *Journal of Molecular Neuroscience* 28(3):291-302 https://doi.org/10.1385/JMN:28:3:291
33. Karpac J, **Ostwald D**, Bui S, Hunnewell P, Shankar M, Hochgeschwender U (2005) Development, maintenance, and function of the adrenal gland in early postnatal proopiomelanocortin-null mutant mice *Endocrinology* 146(6):2555-62 https://doi.org/10.1210/en.2004-1290

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Conferences	Cognitive Computational Neuroscience

Selected Talks

2021	„Human belief state-based exploration and exploitation in an information-selective reversal bandit task", Leibniz Institute for Neurobiology „Human belief state-based exploration and exploitation in an information-selective reversal bandit task", EPFL Neuro Symposium on Surprise, Curiosity and Reward: from Neuroscience to AI

Selected Talks (continued)

2020	Review and discussion of the proposal „Improving good scientific practice and academic integretiy: establishing and maintaining an interdisciplinary network office for open science and research quality", Official hearing of the 56. Meeting of the Berlin House of Representatives' scientific committee „Mind reading and artificial intelligence", Freie Universität Berlin Digital Summer Institute „Computational Cognitive Neuroscience", Humboldt Universität Berlin
2019	„Reproducibility, Trust, and Open Data", Symposium on the reproducibility crisis in psychiatric research, German Association for Psychiatry, Psychotherapy, and Psychosomatics Congress (DGPPN 2019) „The neurocomputational mechanisms of human sequential decision making under uncertainty in a spatial search task", CBS CoCoNUT Seminar, Max Planck Institute for Human Cognitive and Brain Sciences „Sustainability and transparency in computational cognitive neuroscience", CBS Open Science Kickoff Workshop, Max Planck Institute for Human Cognitive and Brain Sciences „Open Science" Nature Research Live Berlin, Panel Discussion
2018	„AI-driven Support in Healthcare – Beyond the Buzzwords", Berlin Institute of Health, Digital Health Forum, Panel Discussion „Open Neuroimaging", 7th Winter School Ethics and Neuroscience of the Bernstein Center for Computational Neuroscience Berlin and the Berlin School of Mind and Brain
2017	„Workshop Open Science", International Max Planck Research School LIFE and Institude of Psychology, Universität Zürich
2015	„An information theoretic approach for EEG-fMRI integration", Symposium talk on EEG-fMRI feature matching, 10th International Conference on Basic and Clinical Multimodal Imaging (BACI 2015) „Variational inference", NeuroBioTheory seminar talk, Frankfurt Institute for Advanced Studies and Max-Planck-Institute for Brain Research/Goethe University Frankfurt
2014	„On the neural dynamics of Bayesian model updating in the somatosensory system", 20th Annual meeting of the Organization for Human Brain Mapping (OHBM 2014)