

Verena Heise

Curriculum Vitae

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About me

Neuroscientist with expertise in molecular biology, cognitive neuroscience and epidemiology

Open and reproducible research practitioner with expertise in pre-registration, Open Data, Open Methods, Open Access, publishing of null results, replication projects

Open and reproducible research advocate with experience in developing infrastructure, running training courses, community building, institutional strategy development

Researcher with focus on Alzheimer's disease and meta-research on Open Science

Employment History

- since 04/2021 **Freelance Open Science researcher, trainer and consultant**
(on maternity leave 04/2023–04/2024), Gladbeck, Germany
- 06/2020–03/2021 **Research Fellow, Hanse-Wissenschaftskolleg, Delmenhorst, Germany**
Research project: The reproducibility/ replication "crisis" in biomedical sciences - A literature review
- 05/2017–04/2020 **NDPH Intermediate Fellow, University of Oxford, Nuffield Department of Population Health, Oxford, UK**
Research project: Genetic and lifestyle determinants of brain ageing; PI: Prof Sarah Parish
- 10/2015–04/2017 **Postdoctoral researcher, University of Oxford, Department of Psychiatry, Oxford, UK**
Research groups: Translational Neuroimaging and Neurobiology of Ageing
PIs: Prof Clare Mackay and Prof Klaus Ebmeier
- 09/2013–08/2015 **Postdoctoral researcher, German Center for Neurodegenerative Diseases, Bonn, Germany**
Research group: Memory dysfunction in neurodegenerative diseases
PI: Prof. Dr. Nikolai Axmacher
- 04/2007–07/2008 **Research assistant (part-time), Central Institute of Mental Health, Mannheim, Germany**
Research group: Developmental Neuropsychopharmacology
Supervisors: PD Dr. Miriam Schneider, Prof. Dr. Rainer Spanagel

Education

- 10/2017–09/2018 **Master of Science in Global Health Science and Epidemiology**
Green Templeton College, University of Oxford, UK
- 04/2010–11/2013 **DPhil in Psychiatry**
Merton College, University of Oxford, UK
Title: How can Magnetoencephalography and Magnetic Resonance Imaging improve our understanding of genetic susceptibility to Alzheimer's disease?
Supervisors: Prof Clare Mackay and Prof Klaus Ebmeier
- 10/2008–09/2009 **Master of Science in Neuroscience**
Merton College, University of Oxford, UK
- 10/2007–09/2008 **Master programme in Molecular Biosciences**
Ruprecht-Karls-University Heidelberg, Germany
- 10/2004–09/2007 **Bachelor of Science in Molecular Cell Biology**
Ruprecht-Karls-University Heidelberg, Germany
- 07/1995–07/2004 **Allgemeine Hochschulreife**
Heinrich-Heine-Gymnasium, Bottrop, Germany

Scholarships/ Individual funding

- 07/2019–06/2022 **Visiting Fellowship**, *QUEST Center, Berlin Institute of Health @ Charité Berlin*
06/2020–06/2021 **innOsci Future Lab Fellowship**, *Stifterverband, Germany*
06/2020–03/2021 **Research Fellowship**, *Hanse-Wissenschaftskolleg, Delmenhorst, Germany*
05/2017–04/2020 **NDPH Intermediate Fellowship**, *University of Oxford, UK*
04/2010–07/2013 **Alzheimer's Research UK PhD scholarship**
10/2008–09/2009 **Scholarship of the German Academic Scholarship Foundation (Studienstiftung)**
09/2006–02/2007 **Erasmus exchange scholarship**, *University of Leeds, UK*

Research expertise and infrastructure development

Selected freelance projects

- since 2021 **Main developer**, Road2Openness - an online Open Science self-assessment tool for research performing organisations: <https://road2openness.de/>; *funded by Stifterverband*
2022 **Virtual event organiser**, Global dynamics in responsible research; <https://symposium.einsteinfoundation.de/>; *funded by Einstein Foundation Berlin*

Meta-research

- since 2022 Open Science - a handbook for research performing organisations
2017–2023 Replication project: Effects of *APOE* genotype on human brain structure

Alzheimer's disease

- since 2009 Investigating effects of genetic susceptibility to Alzheimer's disease on the human brain

Neuroimaging

- since 2009 Human structural and functional magnetic resonance imaging data acquisition and analysis
2010–2016 Human magnetoencephalography data acquisition and analysis

Epidemiology

- 2017–2023 Working with large-scale epidemiological dataset: UK Biobank

Preclinical in vivo research

- 2007–2008 Addiction research, behavioural testing and brain surgery of rodents

Open Research practices

- since 2017 Open Access publishing and publishing of preprints (see publication list)
since 2017 Publication of null results: <https://doi.org/10.1371/journal.pone.0181392>
since 2017 Open data: <https://neurovault.org/collections/2678>
since 2017 Pre-registration: <https://osf.io/brn3h>
since 2017 Open source software: R and RStudio for data analysis

Invited talks on open and reproducible research

Slides and recordings: <https://osf.io/5rfm6>

International conferences

- 11/2022 **(In)credible research - How narratives prevent reliable knowledge production**, Symposium on Ethics and Narratives of Non-Knowledge, Hannover, Germany
- 09/2022 **Fixing Science - Creating a culture for change**, Annual Meeting of the German Informatics Society, Hamburg, Germany
- 03/2022 **Road2Openness - an Open Science self-assessment Tool**, Open Science Conference (online)
- 02/2020 **Research Improvement by and for early career researchers**, Reward Equator Conference, Berlin Germany
- 04/2019 **Open Science - an ECR perspective**, BNA2019 Festival of Neuroscience, Dublin, Ireland
- 11/2018 **Junk Science and how to avoid it**, Future Medicine Science Match, Berlin, Germany

Global webinars

- 11/2020 **Robust Research - A practical guide**, Brainhack Donostia
- 08/2020 **Open Science @ Oxford**, Stifterverband innOsci stakeholder dialogue
- 06/2020 **Credibility in Neuroscience**, Corpus Curiosum Webinar
- 04/2020 **How ECRs can improve training and research quality at their institutions**, eLife ECRWednesday Webinar

Local seminars

- 2022 **Road2Openness - an Open Science self-assessment Tool**, @QUEST Center, BIH (online), @Surrey Reproducibility Society (online), @DIPF | Leibniz-Institut für Bildungsforschung und Bildungsinformation (online)
- 07/2022 **Forschungsförderung im Wandel - Grundlage für erfolgreiche medizinische Translation**, Frankfurter Forum, Fulda, Germany
- 11/2021 **Open Science - creating a culture for change**, Open Science Colloquium (online), ZI Mannheim, Germany
- 2018–2020 **Robust Research - A practical guide for early career researchers**, @Hanse-Wissenschaftskolleg, @Imperial College London, @Oxford Brookes University, @University of Sussex, @King's College London, @University of Sheffield, @University College Cork, @University of Zurich
- 11/2020 **Online panel discussion: Practical advice for reproducibility in neuroscience**, Cortex Club, University of Oxford
- 01/2019 **Research Integrity beyond misconduct**, The Future of Medical Research Integrity and Ethics in Higher Education, Westminster Briefing, London, UK
- 2018, 2019 **Open Science - Better Science?** @Royal Holloway University of London, @University of Cambridge

Teaching expertise

Workshops

- 09/2023 **1-hour online workshop on Implementing Open Research Practices**, LMU Open Science Center Summer School, LMU München, Germany
- 09/2021 **3-hour online workshop on Robust Research Methodology**, Science Outside the Box Symposium, University of Heidelberg, Germany
- 09/2021 **90-minute online talk and workshop on Open Science methods**, Center for Excellence and Transdisciplinary Studies conference, Milan, Italy
- 01/2021 **3-hour workshop on Responsible research and ethics in big data**, Center for Doctoral Training in Health Data Science, University of Oxford, UK
- 09/2019 **3-hour talk and workshop on Open and Reproducible Research Methodology**, Retreat of the graduate school "Perception in context and its neural basis", LMU München, Germany
- 09/2018 **3-hour workshop on Critical thinking and peer review**, Berlin-Oxford Open Research summer school, Berlin, Germany

Lectures/ seminars/ tutorials

- 2018–2021 **Regular internal 1-hour introductory talks on Robust Research - A practical guide** for biomedical and social sciences students and postdocs at the University of Oxford
- 2015–2020 **Regular 1-hour lectures on Open Neuroimaging and the Molecular biology of a neuron** for the WIN MRI graduate programme and the Oxford Online Programme in Sleep Medicine
- 2010–2013 **Regular tutorials on neurodegenerative diseases and mental health disorders** for the Final Honour School of Medical Sciences at the University of Oxford

Membership of Committees

- 05/2022–04/2023 **Steering committee**, German Reproducibility Network, <https://reproducibilitynetwork.de/>
- 12/2021–04/2023 **Expert Group for FAIR Data and Software Supporting Reproducibility**, Knowledge Exchange, <https://www.knowledge-exchange.info/event/fair-data-and-software>
- 12/2018–04/2023 **Advisory Board for Credibility in Neuroscience**, British Neuroscience Association, <https://www.bnacredibility.org.uk>
- 05/2020–11/2021 **Expert Group for Publishing Reproducible Research Output**, Knowledge Exchange, <https://knowledge-exchange.info/event/publishing-reproducible-research-output>
- 10/2018–04/2020 **Lead for Open Science Community theme**, Wellcome Centre for Integrative Neuroimaging, University of Oxford, <https://www.win.ox.ac.uk/open-win>
- 09/2017–04/2020 **Steering group of Reproducible Research Oxford**, <https://ox.ukrn.org>

Organisation of conferences/ workshops/ events

- 2022 **Co-organiser**, Einstein Foundation Virtual Symposium on "Global Dynamics in Responsible Research"
- 2022 **Co-organiser**, Virtual Brainstorming Event on "How to build, grow, and sustain reproducibility or open science initiatives"
- 2022 **Co-organiser**, Virtual Brainstorming Event on "Making reproducibility and open science education and training the norm"
- 2021 **Co-organiser**, Virtual Brainstorming Event on "Reproducibility education meets reality"
- 2020 **Main organiser**, Reproducible Research Oxford launch event
- 2018–2020 **Main organiser**, annual Berlin-Oxford Open Research summer schools
- 2017, 2018 **Co-organiser**, Oxford Reproducibility Schools
- 2016, 2017 **Main organiser**, Oxford Dementia Research Days

Research Outputs

Google scholar profile: <https://tinyurl.com/y3kqvruq>

Web-based tool

- 2022 **Road2Openness** - an online Open Science self-assessment tool for research performing organisations: <https://road2openness.de/>

Open data

- 2023 **Region of interest maps** showing significant results for the project: A comprehensive analysis of *APOE* genotype effects on human brain structure in the UK Biobank: <https://neurovault.org/collections/9357/>
- 2017 **Summary statistics** for the MRI-based analyses of the project: Uncoupling protein 2 Haplotype does not affect Human Brain Structure and Function in a Sample of Community-Dwelling Older Adults: <https://neurovault.org/collections/2678/>

Preregistration

- 2017 Effects of *APOE* genotype on human brain structure: <https://osf.io/brn3h>

Preprint

- 2023 **V Heise**, A Offer, W Whiteley, CE Mackay, JM Armitage, S Parish: A comprehensive analysis of *APOE* genotype effects on human brain structure in the UK Biobank. <https://doi.org/10.1101/2023.06.19.543571> (*under review at Translational Psychiatry*)

Journal articles with peer-review

First authorships

- 2023 **V Heise**, C Holman, ..., T Weissgerber: Ten simple rules for implementing open and reproducible research practices after attending a training course. *PLoS Computational Biology* 19(1): e1010750. <https://doi.org/10.1371/journal.pcbi.1010750>
- 2017 **V Heise**, E Zsoldos, S Suri, C Sexton, A Topiwala, N Filippini, A Mahmood, CL Allan, A Singh-Manoux, M Kivimäki, CE Mackay, KP Ebmeier: *Uncoupling protein 2* Haplotype does not affect Human Brain Structure and Function in a Sample of Community-Dwelling Older Adults. *PLoS ONE* 12(8): e0181392. <https://doi.org/10.1371/journal.pone.0181392>
- 2014 **V Heise**, N Filippini, AJ Trachtenberg, S Suri, KP Ebmeier, CE Mackay: Apolipoprotein E genotype, gender and age modulate connectivity of the hippocampus in healthy adults. *NeuroImage* 98:23-30. <https://doi.org/10.1016/j.neuroimage.2014.04.081>
- 2011 **V Heise**, N Filippini, KP Ebmeier, CE Mackay: The *APOE* ϵ 4 allele modulates brain white matter integrity in healthy adults. *Molecular Psychiatry* 16:908-916. <https://doi.org/10.1038/mp.2010.90>

Co-authorships

- 2023 FE Kohrs, S Auer, ..., **V Heise**, ..., P Zumstein, T Weissgerber: Eleven Strategies for Making Reproducible Research and Open Science Training the Norm at Research Institutions. *eLife* 12:e89736.
- 2022 BA Kent, C Holman, ..., **V Heise**, ..., C Zaza, T Weissgerber: Recommendations for empowering early career researchers to improve research culture and practice. *PLoS Biology* 20(7): e3001680.
- 2020 E Zsoldos, A Mahmood, N Filippini, S Suri, **V Heise**, L Griffanti, CE Mackay, A Singh-Manoux, M Kivimäki, KP Ebmeier: Association of mid-life stroke risk with structural brain integrity and memory performance at older ages: A longitudinal cohort study. *Brain Communications* 2:fcaa026.
- 2019 A Topiwala, S Suri, CL Allan, V Valkanova, N Filippini, CE Sexton, **V Heise**, E Zsoldos, A Mahmood, A Singh-Manoux, CE Mackay, M Kivimäki, KP Ebmeier: Predicting cognitive resilience from midlife lifestyle and multi-modal MRI: A 30-year prospective cohort study. *PLoS ONE* 14(2): e0211273.

- 2019 RA Feis, MJRJ Bouts, EGP Dopfer, N Filippini, **V Heise**, AJ Trachtenberg, JC van Swieten, MA van Buchem, J van Der Grond, SARB Rombouts, CE Mackay: Multimodal MRI of grey matter, white matter, and functional connectivity in cognitively healthy mutation carriers at risk for frontotemporal dementia and Alzheimer's disease. *BMC Neurology* 19:343.
- 2015 RA Feis, SM Smith, N Filippini, G Douaud, EGP Dopfer, **V Heise**, AJ Trachtenberg, JC van Swieten, MA van Buchem, SARB Rombouts, CE Mackay: ICA-based artifact removal diminishes scan site differences in multi-centre resting-state fMRI. *Frontiers in Neuroscience* 9:395.
- 2014 M Rolinski, K Szewczyk-Krolikowski, RAL Menke, N Filippini, **V Heise**, G Zamboni, G Wilcock, K Talbot, M Hu, CE Mackay: Resting state fMRI discerns early Parkinson's from controls. *Journal of Neurology, Neurosurgery and Psychiatry* 85:A1-A57.
- 2013 S Suri, **V Heise**, AJ Trachtenberg, CE Mackay: The forgotten APOE allele: a review of the evidence and suggested mechanisms for the protective effect of APOE ϵ 2. *Neuroscience and Biobehavioral Reviews* 37:2878-2886.
- 2011 KP Ebmeier, N Filippini, **V Heise**, CE Sexton: Other magnetic resonance imaging techniques. *International Psychogeriatrics* 23 Suppl 2:S50-57.
- 2010 M Schneider, **V Heise**, R Spanagel: Differential involvement of the endogenous opioid receptor antagonist naloxone in motivational and hedonic aspects of reward. *Behavioural Brain Research* 208:466-472.

Article without peer-review

- 2023 **V Heise**: Forschungsförderung im Wandel – Grundlage für erfolgreiche medizinische Translation? (Available in German only). *Frankfurter Forum: Diskurse für gesellschafts- und gesundheitspolitische Grundsatzfragen* Heft 26. <https://frankfurter-forum-diskurse.de/publikationen/frankfurter-forum-heft-26>

Book chapters with quality assurance

- 2021 S Suri, V Valkanova, **V Heise**, CE Sexton, KP Ebmeier: Neuroimaging, *Oxford Textbook of Old Age Psychiatry*, 3rd edition.
- 2020 **V Heise**, E Zsoldos, KP Ebmeier: Ageing and the Human Brain, *New Oxford Textbook of Psychiatry*, 3rd edition.
- 2013 CE Sexton, **V Heise**, KP Ebmeier: Neuroimaging, *Oxford Textbook of Old Age Psychiatry*, 2nd edition.