Dr. Ondrej Zika

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Nationality: Czech Republic
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EDUCATION

2015 - 2019: University of Oxford, Oxford, UK
PhD in Clinical Neurosciences - Computational modelling of human aversive learning incl. 4 month research stay in Max Planck Institute for Human Development, Berlin, Germany

2012 - 2013: California Institute of Technology, USA
Visiting student researcher, John O'Doherty lab

2010 - 2012 and 2013 - 2014: Aberystwyth University, Wales
BScEcon Marketing and Psychology (First Class Honours Degree)

2004 - 2010: Townshend International School
Czech Maturita in Mathematics (A), English (B), History (A) and Czech Language (A)

WORK EXPERIENCE

2019 - present: Post-doc and Deputy PI at the Max Planck Institute for Human Development
Role: Post-doctoral scientist, Deputy principal investigator
Description: Leading research projects in cognitive computational neuroscience, supervision of MSc and PhD students.
Methods: fMRI, EEG, computational modelling

2021 - 2022: Guest Editor at the International Journal of Psychophysiology
Role: Editor
Description: Managing manuscript submissions, looking for reviewers, facilitating the review process, making editorial suggestions and decisions, including writing of decision letters.

2016 - 2020: German Ministry of Justice and University of Westminster, Consultant at freelance
Role: Web Application Development and Statistical Analysis
Description: On-line platform development and statistical analysis of survey data.

2015 - 2016: University of Oxford, Department of Law, Part Time
Role: Statistics consultant
Description: Statistical analysis of large datasets of Ombudsman agencies users in the UK, France and Germany.

2014 - 2015: University of Oxford, Functional Magnetic Resonance Imaging of the Brain Centre
Role: Research Assistant - Bishop Lab
Description: Several projects investigating anxiety and depression, responsible for data collection and curation, coding experimental tasks and analysing data.

2013 - 2014: University of Bangor (Visiting Researcher - BULET Lab)
Role: Visiting researcher
Description: EEG investigation of counterfactual outcomes - collaboration with Prof. Thierry towards undergraduate thesis.

2012 - 2013: California Institute of Technology (O'Doherty lab)
Role: Visiting student researcher and research assistant
Description: Data collection and analysis on a number of projects using EEG and fMRI to study time perception, action selection and decision-making.

PUBLICATIONS AND PROCEEDINGS

Morriss, J., Abend, R., **Zika, O.**, Bradford, D. and Mertens, G. (*in prep*). Neural and psychophysiological markers of intolerance of uncertainty. *International Journal of Psychophysiology (Editorial)* in https://www.sciencedirect.com/journal/international-journal-of-psychophysiology/special-issue/10GFVWL4QMD

Koch, C., **Zika**, **O.**, Schuck, N. W. (*in prep*). Age-related difference in how surprise and uncertainty affect learning and choice.

Zika, O., Appel, J., Klinge, C., Shkreli, L., Browning, M., Wiech, K. A. and Reinecke, A. (*submitted*). Reduction of aversive learning rates by Angiotensin II antagonist losartan. *Submitted to Neuropsychopharmacology.*

Zika, O., Wiech, K. A., Reinecke, A., Browning, M & Schuck, N. W. (2022, *preprint*). Trait anxiety is associated with hidden state inference. *Preprint at BioRxiv,* *https://www.biorxiv.org/content/10.1101/2022.04.01.483303v4* (*under review in Nature Communications*).

Zika, O., Wiech, K. A., & Schuck, N. W. (2021). *High trait anxiety is associated with improved state inference* in Top Ranked Abstracts from the 2021 Annual Meeting of the Society for Affective Science. Affect Sci. 2022;3(1):223-233. doi: 10.1007/s42761-021-00066-6. Epub 2022 Jan 21. PMID: 35079704; PMCID: PMC8776382.

Gagne, C., **Zika, O.**, Dayan, P., & Bishop, S. J. (2020). Impaired adaptation of learning to contingency volatility in internalizing psychopathology. *Elife*, 9, e61387.

Zika, O. (2019). Computational and Neural Mechanisms of Human Aversive Learning, ProQuest Dissertations and Theses. http://solo.bodleian.ox.ac.uk/permalink/f/1lj314/TN_proquest2440365805

Bijsterbosch, J. D., Ansari, T. L., Smith, S., Gauld, O., **Zika, O.**, Boessenkool, S., Browning, M., Reinecke, A. and Bishop, S. J. (2018). Stratification of MDD and GAD patients by resting state brain connectivity predicts cognitive bias. *Neuroimage Clin.*, 19: 425–433.

McNamee, D., Liljeholm, M., **Zika, O.** and O'Doherty, J.P. (2015). Characterizing the associative content of brain structures involved in habitual and goal-directed actions in humans: a multivariate fMRI study. *Journal of Neuroscience*, 35(9), 3764 - 3771.

Gao, S., **Zika, O.**, Rogers, R. and Thierry, G. L. (2015). Second language feedback abolishes the "hot hand" effect during even-probability gambling. *Journal of Neuroscience*, 35(15), 5983-5989.

Zika, O. and Thierry, G. L. (2014). ERP evidence for counterfactual outcome processing in the human brain. *Paper presented at 2nd Annual Welsh Branch of British Psychological Society Student Conference.*

HONOURS, AWARDS AND SCHOLARSHIPS

2022	Jacobs Foundation Seed Grant, three year grant to 75 000 CHF
2021	DFG (German Research Foundation) three-year grant award to study neural processing of belief-state uncertainty, with Prof. Nicolas Schuck and Prof. John-Dylan Haynes, 281 786 EUR, https://gepris.dfg.de/gepris/projekt/462197630
2017	Medical Research Council Supplementary Training Award: £3 000 Travel Award for Cognitive Computational Neuroscience 2017: $500
2015 - 2018	Medical Sciences Graduate School Studentship

2014 Prize for Best Undergraduate Joint Honours Dissertation Project - awarded by British Psychological Society

2013 The Kellner Foundation Scholarship for talented Czech students: £3 500
Dilys Edmunds Scholarship: £200

2012 The Kellner Foundation Scholarship for talented Czech students: $20 000
Thomas Charles Edwards Scholarship: £180

2010 - 2013 Aberystwyth Bursary: £3 000

COLLABORATIONS AND ONGOING PROJECTS

Longitudinal study on anxiety and depression throughout the COVID-19 pandemic
with Dr. Claire Gillan, Trinity College Dublin

Uncertainty, and its intolerance, in mental health disorders
with Dr. Alex Pike, York

Temporal state representation in human orbitofrontal cortex
with Dr. Katja Wiech and Prof. Rafal Bogacz, Oxford

Uncertainty of partially-observable states and its neural representation
with Prof. John-Dylan Haynes, Humboldt University and Prof. Nicolas Schuck, University of Hamburg

Foraging behaviour in eating disorders
with Dr. Sam Hall-McMaster, Harvard University and MPIB

Behavioural and neural markers of trait sensitivity
with Dr. Karolina Finc, University of Torun, Poland

The role of Angiotensin II antagonist in aversive learning
with Dr. Andrea Reinecke, Oxford Psychiatry

Development of generalisation in adolescent children
with Dr. Zoe Ngo, Dr. Lennart Luttegau, Dr. Nadesha Trudel, Christoph Koch and Elisa Buchberger

Aversive generalisation and the role of replay
with Prof. Schuck and Luianta Verra

CONFERENCE PRESENTATIONS AND POSTERS

2022 Reinforcement Learning and Decision Making, Providence, Talk
European Meeting for Human Fear Conditioning, online, Talk
Computational Properties of the Prefrontal Cortex, Oxford, Poster

2021 Society for Affective Science Annual Meeting (SAS), Pre-recorded talk
European Meeting for Human Fear Conditioning (EMHFC), Poster

2019 Cognitive Computational Neuroscience (CCN), Poster
Motivation and Cognitive Control (MCC), Poster
Orbito-frontal Cortex Meeting, Paris, Poster

2018 Society for Neuroscience, San Diego, Poster
Bayesian Modelling Course, Amsterdam, Poster

2017 Pain Research Meeting, Antwerp, Poster
Cognitive Computational Neuroscience (CCN), Poster

TEACHING AND SUPERVISION EXPERIENCE

Supervision

2022-25	PhD of Luianta Verra, *Aversive generalisation and replay in health and disease*
2021-22	MSc thesis of Luianta Verra, *Behavioural and neural basis of uncertainty*
2020	Katya Yasenska
2019	Verena Sarrazin, Sudeshna Bora, Katya Yasenska
2017	Judith Appel

Teaching

2021	Full-day tutorial on using git and datalad for project management and reproducibility
2021	Guest lecture "The (not so unlikely) relationship between architecture and neuroscience: from grid cells to design", Polytechnic University of Milan
2021	Guest lecture "Neural and Computational basis of Reinforcement Learning", Max Planck Graduate School LIFE Seminar
2018 - 2019	Statistics tutor in Biomedical Sciences, University of Oxford
2018	Participation in the in2science programme, hosted a student over summer

INVITED TALKS

February 2023	UCL Max Planck Computational Psychiatry Seminar series
June 2022	Reinforcement Learning and Decision-Making (RLDM) 2022 Conference
	PAIN Group meeting, University of Oxford, UK
May 2022	European Meeting for Human fear Conditioning 2022, presentation
April 2022	PHI Lab, University of Torun, Poland
March 2022	Gillan Lab, Trinity College Dublin, Ireland
Feb 2022	Nassar Lab Meeting, Brown University, US

AD-HOC REVIEWER FOR

Journal of Neuroscience, Nature Human Behaviour, Brain, European Journal of Pain, The Journal of Pain, NeuroImage, Neuropsychologia, Cerebral Cortex, PLOS Computational Biology, Emotion, The International Journal of Psychophysiology, Translational Psychiatry

IT, METHODS AND ANALYSIS SKILLS

- Research skills: fMRI, EEG, eye-tracking, Bayesian modelling, computational modelling, hierarchical models, pupillometry
- Highly familiar with all operating systems, Linux/Unix in particular
- Programming languages: R, Matlab, Python, Shell/Bash, JavaScript
- Analysis tools: fMRIPrep, FieldTrip, Jupyter, RMarkdown, Bayesian modelling (brms, stan, pymc3, bambi), SPSS, JASP
- Visualisation tools: ggplot, tidyverse, seaborn, matplotlib, inkscape
- Reproducibility and management tools: git, Datalad, github/gitlab project management and collaboration toolkit
- Other technical skills: web applications (shiny, streamlit), AWS

OTHER QUALIFICATIONS AND COURSES

- Bayesian Modelling using JAGS Course, Amsterdam, 2018
- FMRIB Graduate Course (2014 - 2015) - detailed course on MRI physics and analysis ran by Nuffield Department of Clinical Neurosciences, University of Oxford
- FSL Summer School (2014) - one week course on FSL analysis tool