Dr. rer. nat.
JULIAN Q. KOSCIESSA

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BRIEF OVERVIEW

I'm an experienced cognitive neuroscientist with a special interest in the measurement and characterization of neural dynamics, including the functional role of neural rhythms and noise in enabling flexible cognition and behavior. I'm passionate about neuroscientific tool development and open science.

EXPERIENCE

Postdoctoral Researcher — **2020 – PRESENT**
Max Planck Institute for Human Development
Berlin, Germany

Predoctoral Research Fellow — **2016 – 2020**
IMPRS Comp2Psych
Max Planck UCL Center for Computational Psychiatry and Aging
Berlin, Germany

Research Assistant/Intern — **2010 – 2016**
Berlin, Germany
London, UK
Singapore, Singapore

EDUCATION

Humboldt Universität zu Berlin — **2016 – 2020**
Psychology
Dr. rer. nat. (summa cum laude)

Humboldt Universität zu Berlin — **2014 – 2016**
Mind & Brain – Track Brain
M.Sc. (GPA: 1.0)

Freie Universität Berlin — **2011 – 2014**
Psychology
B.Sc. Bachelor of Science (GPA: 1.1)

EXPERTISE

MATLAB	■■■■■■■■	**Python**	■■■■
R	■■■■■■■	**English**	■■■■■■■■■■
UNIX	■■■■■■■	**Mandarin**	■■■■

RESEARCH EXPERIENCE

07/2020 – PRESENT **Postdoctoral Researcher**
Max Planck Institute for Human Development, Berlin, Germany

10/2016 – 03/2020 **Predoctoral Research Fellow**
IMPRS COMP2PSYCH
Max Planck UCL Center for Computational Psychiatry and Aging
Max Planck Institute for Human Development, Berlin, Germany
Lifespan Neural Dynamics Group
Supervisors: Prof. Dr. Ulman Lindenberger, Dr. Douglas D. Garrett

10/2015 – 03/2016 **Research Intern**
UCL Institute of Cognitive Neuroscience
PIs: Prof. Emrah Düzel & Prof. Ray Dolan
Supervisor: Dr. Dorothea Hämmerer

03/2015 – 07/2015 **Research Intern**
Max Planck Institute for Human Development, Berlin, Germany
Center for Adaptive Rationality (ARC)
Supervisor: Dr. Wouter van den Bos

09/2012 – 09/2013 **Research Assistant**
07/2014 – 09/2015 Max Planck Institute for Human Development, Berlin, Germany
04/2016 – 09/2016 Cognitive and neuronal dynamics of memory across the lifespan
Supervisors: Dr. Markus Werkle-Bergner & Dr. Yee Lee Shing

01/2014 – 05/2014 **Research Intern**
Cognitive Neuroscience Laboratory, Duke-NUS, Singapore
PI: Prof. Michael Chee
Supervisor: Dr. Irma Kurniawan

EDUCATION

10/2016 – 10/2020 **Humboldt Universität zu Berlin**
Doctoral student: Psychology
Dr. rer. nat. (summa cum laude)
Dissertation: Measurement and relevance of rhythmic and aperiodic human brain dynamics

10/2014 – 09/2016 **Humboldt Universität zu Berlin**
Master's student: Mind & Brain – Track Brain
Degree: M.Sc. Master of Science (GPA: 1.0)
Thesis: Effects of short-term memory load and task training on the amplitude and abundance of rhythmic neural activity (1.0)
Supervisors: Dr. Markus Werkle-Bergner, Prof. Dr. Werner Sommer

09/2015 – 04/2016 **University College London**
Two Erasmus exchange terms; Institute of Neurology

07/2013 – 05/2014 **National University of Singapore (NUS)**
Two exchange semesters; Faculty of Arts and Social Sciences

10/2011 – 09/2014 **Freie Universität Berlin**
Bachelor's student: Psychology
Degree: B.Sc. Bachelor of Science (GPA: 1.1)
Thesis: The assessment of microsaccades from the rEOG (1.0)
Supervisors: Dr. Markus Werkle-Bergner, Prof. Dr. Michael Niedeggen

PEER-REVIEWED JOURNAL PUBLICATIONS

Kosciessa, J. Q., Lindenberger, U., & Garrett, D. D. (2021). Thalamocortical excitability adjustments guide human perception under uncertainty. Nature Communications. Advance online publication. doi:10.1038/s41467-021-22511-7

Kloosterman, N. A., **Kosciessa, J. Q.**, Lindenberger, U., Fahrenfort, J. J., & Garrett, D. D. (2020). Boosts in brain signal variability track liberal shifts in decision bias. Elife, 9. doi:10.7554/eLife.54201

Kosciessa, J. Q., Kloosterman, N. A., & Garrett, D. D. (2020). Standard multiscale entropy reflects neural dynamics at mismatched temporal scales: What's signal irregularity got to do with it? PLoS Computational Biology, 16(5), e1007885. doi:10.1371/journal.pcbi.1007885

Kosciessa, J. Q., Grandy, T. H., Garrett, D. D., & Werkle-Bergner, M. (2020). Single-trial characterization of neural rhythms: Potential and challenges. NeuroImage, 206, 116331. doi:10.1016/j.neuroimage.2019.116331

Hämmerer, D., Callaghan, M. F., Hopkins, A., **Kosciessa, J.**, Betts, M., Cardenas-Blanco, A., Kanowski, M., Weiskopf, N., Dayan, P., Dolan, R. J., & Düzel, E. (2018). Locus coeruleus integrity in old age is selectively related to memories linked with salient negative events. Proceedings of the National Academy of Sciences of the United States of America, 115, 2228-2233. doi:10.1073/pnas.1712268115

MONOGRAPHS/THESES

Kosciessa, J. Q. (2020, Dr. rer. nat.). Measurement and relevance of rhythmic and aperiodic human brain dynamics. Humboldt-Universität zu Berlin. doi:10.18452/22040

Kosciessa, J. Q. (2016, M. Sc.). Effects of short-term memory load and task training on the amplitude and abundance of rhythmic neural activity. Humboldt-Universität zu Berlin

Kosciessa, J. (2014, B. Sc.). The assessment of microsaccades from the rEOG. Freie Universität Berlin

POSTERS (SELECTED)

Kosciessa, J. Q., & Garrett, D. D. (2019). Multimodal signatures of selective attention dynamics across the adult lifespan. Poster presented at OHBM 2019: Rome, Italy.

Perry, A. *, **Kosciessa, J. Q.***, Polk, S., Garrett, D.D. (2019). Aging-related differences in the structural and functional basis of attentional flexibility. Poster presented at OHBM 2019: Rome, Italy. (* joint contributions)

Kosciessa, J. Q., & Garrett, D. D. (2018). Thalamocortical BOLD variability reflects network integration and alpha rhythms. Poster presented at Interpreting BOLD: Furthering the dialogue between cellular and cognitive neuroscience. Oxford, UK.

Kosciessa, J. Q., & Garrett, D. D. (2018). Neural rhythm dynamics during rapid attentional switching. Poster presented at CuttingEEG. Paris, France.

Kosciessa, J. Q., Grandy, T. H., Garrett, D. D., & Werkle-Bergner, M. (2018). Single-trial oscillation detection reveals stable inter-individual differences in rhythmicity. Poster presented at Organization for Human Brain Mapping Meeting 2018. Singapore, Singapore.

Kosciessa, J. Q., Grandy, T.H., Werkle-Bergner, M. (2017). Towards a single-trial characterization of neural rhythms. Poster presented at CuttingEEG 2017, Glasgow, UK.

TEACHING & TALKS (SELECTED)

2020 (postponed to 2021): Invited symposium talk ("Influences of arousal and cortical excitability on adaptive perceptual decision making"): "Humans dynamically adjust sensory excitability to guide perceptual decisions". International Conference of Cognitive Neuroscience. Helsinki, Finland
2020: Invited Colloqium Talk: "Measurement and relevance of rhythmic and aperiodic human brain dynamics". Biopsychologie und Neuroergonomie. Technische Universitat Berlin
2020: Invited Methods workshop: "Multi-scale entropy as a tool to characterize neural signal irregularity". EEG Meeting Series. Max Planck Institute for Human Development.
2018: Invited LIFE Seminar: "Methods for the analysis of rhythmic and arrhythmic brain activity". Max Planck Institute for Human Development. Berlin, Germany

FUNDING & AWARDS

2021: DAAD Conference Travel Grant to OHBM Virtual Meeting 2021
2021: Merit Abstract Award OHBM Virtual Meeting 2021
2018: IBRO Poster Award Interpreting BOLD 2018
2018: DAAD Conference Travel Grant to Interpreting BOLD 2018 (Oxford, UK)
2015/2016: DAAD Erasmus Stipend (University College London, UK)
2014: DAAD PROMOS Stipend (National University Singapore, Singapore)

PROFESSIONAL ACTIVITES

Peer-review:
PNAS, Brain Topography, European Journal of Neuroscience, NeuroImage, PLOS One
Member of the Organization for Human Brain Mapping (OHBM)