Curriculum Vitae

Prof. Dr. Daniel Kaiser

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Education

2015	PhD in Cognitive and Brain Sciences (CIMeC, University of Trento) Supervisor: Marius Peelen Thesis title: *Inter-object grouping in visual processing: How the brain uses real-world regularities to carve up the environment*
2012	Diploma in Psychology, Minor in Statistics (Regensburg University) Supervisors: Gyula Kovács, Mark Greenlee Thesis title: *Dissociating repetition priming and adaptation-aftereffect related neural activity in the human brain*

Research Experience

2024 –	Professor (W2) for Neural Computation at the Department for Mathematics and Computer Science, Physics, Geography (Justus-Liebig-Universität Gießen)
2021 – 2024	Professor (W1) for Neural Computation at the Department for Mathematics and Computer Science, Physics, Geography (Justus-Liebig-Universität Gießen)
2019 – 2021	Lecturer (Assistant Professor) at the Department of Psychology (University of York)
2017 – 2019	Postdoctoral researcher in the *Neural Dynamics of Visual Cognition* group (Freie Universität Berlin, with Radoslaw Cichy)
2016	Visiting postdoctoral researcher in the *Active Vision and Cognition* group (BCCN, Humboldt University Berlin, with Sven Ohl and Timo Stein)
2016 – 2017	Postdoctoral researcher in the project *Characterizing and Improving Brain Mechanisms of Attention* (CIMeC, University of Trento, with Marius Peelen)
2012 – 2015	PhD student in the *Visual Cognitive Neuroscience* group (CIMeC, University of Trento, with Marius Peelen)
2012	MRI operator and technical assistant (Regensburg University)
2010 – 2012	Student researcher in the project *Person Perception* (Regensburg University, with Gyula Kovács)
2011	Student researcher in the *Face Perception* group (University of Aberdeen, with Mike Burton)
2010	Student researcher in the project *Brain Plasticity and Perceptual Learning* (Regensburg University, with Mark Greenlee)

Teaching Experience

2024/25	BSc/MSc Lecture *Neural Computation I* (JLU Gießen)
2024/25	BSc/MSc Seminar *Neural Computation I* (JLU Gießen)
2023/24	BSc Lecture *Neuroinformatik I* (JLU Gießen)
2023/24	BSc Seminar *Neuroinformatik I* (JLU Gießen)
2022/23	BSc Seminar *Sensation and Perception* (JLU Gießen)
2023	PhD Seminar *Unveiling Neural Representations with Multivariate Pattern Analyses for EEG and fMRI* (Universita Vita-Salute San Raffaele, Mailand)
2022/23	BSc Lecture *Neuroinformatik I* (JLU Gießen)
2022/23	BSc Seminar *Neuroinformatik I* (JLU Gießen)
2021	BSc course *Cognitive Neuroscience Methods* (University of York)
2020	BSc course *Brain Mechanisms of Visual Recognition* (University of York)
2020	MSci course *Third Year Empirical Project* (University of York)
2020	BSc course *Cognitive Neuroscience Methods* (University of York)
2019	MSc course *Cognitive Neuroscience* (Freie Universität Berlin, with Radoslaw Cichy)
2018	PhD course *MEG and EEG methods for imaging in neuroscience* (Karolinska Institute Stockholm, with Daniel Lundqvist and Radoslaw Cichy)
2016	MSc course *Foundations of Cognitive Neuroscience* (University of Trento, with Marius Peelen)
2015	PhD/MSc course *Psychtoolbox Scripting* (University of Trento, teaching assistant, with Scott Fairhall)
2015	MSc course *Current Debates in Cognitive Neuroscience* (University of Trento, with Daniel Adams)
2014/15	Summer school courses *The Social Brain* (Harvard University, teaching assistant, with Paul Downing and Marius Peelen)
2013 – 2014	PhD course *Quantitative Methods* (Johannes-Kepler University Linz)
2012 – 2013	PhD course *Psychtoolbox Scripting* (University of Trento, teaching assistant, with Christoph Braun)
2010 – 2011	MSc course *Visual Perception* (Regensburg University, teaching assistant, with Gyula Kovács)
2010 – 2011	BSc workshops *Basics of brain research for psychologists* and *fMRI in cognitive neuroscience* (Regensburg University)
2009 – 2011	BSc course *General Psychology – Sensory and Cognitive Systems* (Regensburg University, teaching assistant, with Mark Greenlee)

Grants and Awards

2024 – 2027	DFG research grant *Resolving the brain dynamics underlying aesthetic visual experiences* – 228,323€
2023 – 2027	ERC starting grant *Personalized priors – How idiosyncrasies in internal models explain individual differences in natural vision* – 1,484,625€
2023 – 2026	DFG research grant *Probing prefrontal influences on the emergence of visual category representations* – 409,195€

2023 – 2024	Forschungscampus Mittelhessen "Experimentierräume" *Resolving the where and when of math and reading in the human brain* (with Mareike Grotheer, Philipps-Universität Marburg) – 22,043€
2022 – 2025	DFG research grant *Spatiotemporal prediction in the cortical processing of natural visual information* (project within CRC135) – 426,800€
2018 – 2021	DFG research grant *Objects in Scenes* funded by the German Research Foundation – 340.320€
2019	DAAD Conference Travel Stipend – 1,486€
2019	Research Startup Stipend by the Department of Education and Psychology of Freie Universität Berlin – 2,000€
2018	DAAD Conference Travel Stipend – 2,100€
2017/18	Marie Sklodowska-Curie Seal of Excellence (for scoring 89/92% with EU grant proposals)
2017	CIMeC Young Researcher Award (among the three best junior researchers in 10 years) – 500€
2016	Humboldt Talent Travel Award, Humboldt University Berlin (one month visiting postdoc) – 3,000€
2015	Abstract award at Workshop on Concepts, Actions and Objects – 200€
2013/14/15	Best presentation awards at CIMeC Doctoral School Day – 3x 200€
2012 – 2015	PhD grant of the CIMeC, University of Trento – monthly stipend (1,200€)
2011	Research internship stipend of the German Academic Scholarship Foundation – 1,100€
2009 – 2012	Studentship of the German Academic Scholarship Foundation – monthly stipend (300€)

Supervision

2024 –	Mustafa Alp Ekinci (PhD Student, JLU Gießen)
2023 –	Dr. Merve Kiniklioglu (Postdoctoral Researcher, JLU Gießen)
2023 –	Philipp Flieger (PhD Student, JLU Gießen)
2023 –	Ilker Duymaz (PhD Student, JLU Gießen)
2023 –	Micha Engeser (PhD Student, JLU Gießen)
2023 –	Susan Ajith (PhD Student, JLU Gießen, Co-Supervision with Martin Hebart)
2023 –	Dr. Lu Chun Yeh (Postdoctoral Researcher, JLU Gießen)
2022 –	Dr. Sanjeev Nara (Postdoctoral Researcher, JLU Gießen)
2021 –	Rico Stecher (PhD Student, JLU Gießen)
2021 –	Gongting Wang (PhD Student, FU Berlin, Co-Supervision with Radoslaw Cichy)
2019 –	Matthew Foxwell (PhD Student, University of York, Co-Supervision with David Pitcher)
2019 – 2024	Lixiang Chen (PhD Student, FU Berlin, Co-Supervision with Radoslaw Cichy)
2014 –	15+ student research assistants, 20+ BSc/MSc students

Reviewing

For Journals: Attention Perception & Psychophysics, Behavioral Brain Research, Cerebral Cortex, Cognition, Cognitive Science, Communications Biology, Communications Psychology, Consciousness & Cognition, Cortex, eLife Sciences, eNeuro, European Journal of Neuroscience, Frontiers in Human Neuroscience, Journal of Experimental Psychology: Human Perception & Performance, Journal of Experimental Psychology: Learning Memory & Cognition, Journal of Neurophysiology, Journal of Neuroscience, Journal of Cognitive Neuroscience, Journal of Vision, Nature Communications, Nature Human Behavior, Neuroimage, Neuropsychologia, Neuroscience, Neuroscience and Biobehavioral Reviews, PeerJ, Perception, PloS Biology, PloS ONE, Proceedings of the Royal Society B, Psychological Review, Psychological Science, Psychology of Aesthetics Creativity and the Arts, Psychophysiology, Science Advances, Scientific Reports, Trends in Cognitive Sciences, Visual Cognition.

For Grant Agencies: Agence Nationale de Recherche (France), Biotechnology and Biological Sciences Research Council (UK), Canadian Foundation for Innovation, Deutsche Forschungsgemeinschaft (Germany), European Research Council, Research Council of Norway

Preprints

Yeh LC, Bardelang M, Kaiser D. (submitted) Cortical alpha rhythms interpolate occluded motion from natural scene context.

Yeh LC, Gayet S, Kaiser D, Peelen MV. (submitted) The neural time course of size constancy in natural scenes.

Chen L, Cichy RM, Kaiser D. (submitted) Representational shifts from feedforward to feedback rhythms index phenomenological integration in natural vision.

Stecher R, Cichy RM, Kaiser D. (submitted) Decoding the contents of visual brain rhythms.

Wang G, Chen L, Cichy RM, Kaiser D. (submitted) Enhanced and idiosyncratic neural representations of personally typical scenes.

Xie S, Singer JJD, Yilmaz B, Kaiser D*, Cichy RM*. (submitted) The representational nature of spatio-temporal recurrent processing in visual object recognition. *equal contribution

Gao X, Yang J, ... , Kaiser D, Wei T, Yuan B. (submitted) How do we imagine a speech? A triple network model for situationally simulated inner speech.

Lu Z*, Doerig A*, Bosch V*, Krahmer B, Kaiser D*, Cichy RM*, Kietzmann TC*. (submitted) End-to-end topographic networks as models of cortical map formation and human visual behaviour: moving beyond convolutions. *equal contribution

Goupil N, Kaiser D, Papeo L. (submitted) Category-specific effects of high-level relations in visual search.

Iamshchinina P, Haenelt D, Trampel R, Weiskopf N, Kaiser D*, Cichy RM*. (submitted) Benchmarking GE-BOLD, SE-BOLD, and SS-SI-VASO sequences for depth-dependent separation of feedforward and feedback signals in high-field MRI. *equal contribution

Journal Publications

Carter A, Kaiser D. (in press) An object numbering task reveals an underestimation of complexity for typically structured scenes. *Psychon Bull Rev.*

Kucuk E, Foxwell MJ, Kaiser D, Pitcher D. (in press) Moving and static faces, bodies, objects and scenes are differentially represented across the three visual pathways. *J Cogn Neurosci.*

Stecher R, Kaiser D. (2024) Representation of imaginary scenes and their properties in cortical alpha activity. *Sci Rep* 14: 12796.

Chen L, Cichy RM, Kaiser D. (2024) Coherent categorical information triggers integration-related alpha dynamics. *J Neurophysiol* 131: 619-625.

Nara S, Kaiser D. (2024) Integrative processing in artificial and biological vision predicts the perceived beauty of natural images. *Sci Adv* 10: eadi9294.

Wang G*, Foxwell MJ*, Cichy RM, Pitcher D, Kaiser D. (2024) Individual differences in internal models explain idiosyncrasies in scene perception. *Cognition* 245: 105723. *equal contribution

Klink H, Kaiser D, Stecher R, Ambrus GG*, Kovács G*. (2023) Your place or mine? The neural dynamics of personally familiar scene recognition suggests category independent familiarity encoding. *Cereb Cortex* 33: 11634–11645. *equal contribution

Pitcher D, Sliwinska MW, Kaiser D. (2023) TMS disruption of the lateral prefrontal cortex increases neural activity in the default mode network when naming facial expressions. *Soc Cogn Affect Neurosci* 18: 1-9.

Chen L, Cichy RM*, Kaiser D*. (2023) Alpha-frequency feedback to early visual cortex orchestrates coherent naturalistic vision. *Sci Adv* 9: eadi2321. *equal contribution

Kaiser D, Stecher R, Doerschner K. (2023) EEG decoding reveals neural predictions for naturalistic material behaviors. *J Neurosci* 43: 5406-5413.

Kaiser D. (2022) Spectral brain signatures of aesthetic natural perception in the alpha and beta frequency bands. *J Neurophysiol* 128: 1501-1505.

Kaiser D. (2022) Characterizing dynamic neural representations of scene attractiveness. *J Cogn Neurosci* 34: 1988-1997.

Chen L, Cichy RM*, Kaiser D*. (2022) Semantic scene-object consistency modulates N300/400 EEG components, but does not automatically facilitate object representations. *Cereb Cortex* 32: 3553-3567. *equal contribution

Iamshchinina P, Karapetian A, Kaiser D*, Cichy RM*. (2022) Resolving the time course of visual and auditory object categorization. *J Neurophysiol* 127: 1622-1628. *equal contribution

Kaiser D, Jacobs AM, Cichy RM. (2022) Modelling brain representations of abstract concepts. *PLOS Comput Biol* 18: e1009837.

Kaiser D, Cichy RM. (2021) Parts and wholes in scene processing. *J Cogn Neurosci* 34: 4-15.

Iamshchinina P, Kaiser D, Yakupov R, Haenelt D, Sciarra A, Mattern H, Lüsebrink F, Duezel E, Speck O, Weiskopf N, Cichy RM. (2021) Perceived and mentally rotated contents are differentially represented in cortical depth of V1. *Commun Biol* 4: 1069.

Ambrus GG, Eick CM, Kaiser D, Kovács G. (2021) Getting to know you: emerging neural representations during face familiarization. *J Neurosci* 41: 5687-5698.

Kaiser D, Häberle G, Cichy RM. (2021) Coherent natural scene structure facilitates the extraction of task-relevant object information in visual cortex. *Neuroimage* 340: 118365.

Stein T, Kaiser D, Fahrenfort JJ, van Gaal S. (2021) The human visual system differentially represents subjectively and objectively invisible stimuli. *PLOS Biol* 19: e3001241.

Kaiser D, Nyga K. (2020) Tracking cortical representations of facial attractiveness using time-resolved representational similarity analysis. *Sci Rep* 10: 16852.

Kaiser D, Inciuraite G, Cichy RM. (2020) Rapid contextualization of fragmented scene information in the human visual system. *Neuroimage* 219: 117045.

Xie S, Kaiser D, Cichy RM. (2020) Visual imagery and perception share neural representations in the alpha frequency band. *Curr Biol* 30: 2621-2627.

Kaiser D, Häberle G, Cichy RM. (2020) Real-world structure facilitates the rapid emergence of scene category information in visual brain signals. *J Neurophysiol* 124: 145-151.

Kaiser D, Häberle G, Cichy RM. (2020) Cortical sensitivity to natural scene structure. *Hum Brain Mapp* 41: 1286-1295.

Battistoni E, Kaiser D, Hickey C, Peelen MV. (2020) The time course of spatial attention during naturalistic visual search. *Cortex* 122: 225-234.

Ambrus GG*, Kaiser D*, Cichy RM, Kovács G. (2019) The neural dynamics of familiar face recognition. *Cereb Cortex* 29: 4775-4784. *equal contribution

Kaiser D, Turini J, Cichy RM. (2019) A neural mechanism for contextualizing fragmented inputs during naturalistic vision. *eLife* 8: e48182.

Kaiser D, Quek GL, Cichy RM, Peelen MV. (2019) Object vision in a structured world. *Trends Cogn Sci* 23: 672-685.

Proklova D, Kaiser D, Peelen MV. (2019) MEG sensor patterns reflect perceptual but not categorical similarity of animate and inanimate objects. *Neuroimage* 193: 167-177.

Cichy RM, Kaiser D. (2019) Deep neural networks as scientific models. *Trends Cogn Sci* 23: 305-317.

Kaiser D, Cichy RM. (2018) Typical visual-field locations enhance processing in object-selective channels of human occipital cortex. *J Neurophysiol* 120: 848-853.

Kaiser D, Cichy RM. (2018) Typical visual-field locations facilitate access to awareness for everyday objects. *Cognition* 180: 118-122.

Kaiser D, Moeskops MM, Cichy RM. (2018) Typical retinotopic locations impact the time course of object coding. *Neuroimage* 176: 372-379.

Kaiser D, Peelen MV. (2018) Transformation from independent to integrative coding of multi-object arrangements in human visual cortex. *Neuroimage* 169: 334-341.

Kaiser D, Haselhuhn T. (2017) Facing a regular world: How spatial object structure shapes visual processing. *J Neurosci* 37: 1965-1967.

Kaiser D, Oosterhof NN, Peelen MV. (2016) The neural dynamics of attentional selection in natural scenes. *J Neurosci* 36: 10522-10528.

Stein T, Kaiser D, Hesselmann G. (2016) Can working memory be non-conscious? *Neurosci Conscious* 1: 1-3.

Proklova D*, Kaiser D*, Peelen MV. (2016) Disentangling representations of object shape and object category in human visual cortex: the animate-inanimate distinction. *J Cogn Neurosci* 28: 680-692. *equal contribution

Kaiser D*, Azzalini DC*, Peelen MV. (2016) Shape-independent object category responses revealed by MEG and fMRI decoding. *J Neurophysiol* 115: 2246-2250. *equal contribution

Kaiser D, Stein T, Peelen MV. (2015) Real-world spatial regularities affect visual working memory for objects. *Psychon Bull Rev* 22: 1784-1790.

Stein T, Kaiser D, Peelen MV. (2015) Interobject grouping facilitates visual awareness. *J Vis* 15: 1-10.

Hickey C, Kaiser D, Peelen MV. (2015) Reward guides attention to object categories in real-world scenes. *J Exp Psychol Gen* 144: 264-273.

Keresztes A, Kaiser D, Kovács G*, Racsmány M*. (2014) Testing promotes long-term learning via stabilizing activation patterns in a large network of brain areas. *Cereb Cortex* 24: 3025-3035. *equal contribution

Kaiser D, Stein T, Peelen MV. (2014) Object grouping based on real-world regularities facilitates perception by reducing competitive interactions in visual cortex. *Proc Natl Acad Sci USA* 111: 11217–11222.

Kaiser D*, Strnad L*, Seidl KN, Kastner S, Peelen MV. (2014) Whole person-evoked fMRI activity patterns in human fusiform gyrus are accurately modeled by a linear combination of face- and body-evoked activity patterns. *J Neurophysiol* 111: 82-90. *equal contribution

Kaiser D, Walther C, Schweinberger SR, Kovács G. (2013) Dissociating the neural bases of repetition-priming and adaptation in the human brain for faces. *J Neurophysiol* 110: 2727-2738.

Kovács G, Kaiser D, Kaliukhovich DA, Vidnyánszky Z, Vogels R. (2013) Repetition probability does not affect fMRI repetition suppression for objects. *J Neurosci* 33: 9805-9812.

Walther C, Schweinberger SR, Kaiser D, Kovács G. (2013) Neural correlates of priming and adaptation in familiar face perception. *Cortex* 49: 1963–1977.

Gießen, October 2024