



PhD Program between Freie Universität Berlin (FUB) and the China Scholarship Council (CSC)

**Open PhD Position at Freie Universität Berlin,
offered only to Chinese CSC scholarship candidates 2026**

Department/Institute: | Education and Psychology |

Subject area: | Cognitive Neuroscience |

Name of Supervisor: | Prof. Dr. Radoslaw Cichy |

Number of open PhD positions: | 1 |

Type of the PhD Study: | Full-time |

Project title: | Revealing the neural basis of visual learning by layer-specific 7T-fMRI |

PhD Project description:

Learning to discriminate visual objects changes neural processing in the human visual brain: However, what changes exactly does this involve? The goal of the PhD is to determine the cortical basis of visual learning.

We already acquired the relevant fMRI data. We used a prolonged app-based training protocol during which participants discriminated between similar objects with increasing difficulty for 2 months. Before and after the intervention we acquired 7T layer-specific fMRI data. This allows us to pinpoint the cortical layers across the visual processing hierarchy that change in the course of learning across the visual processing hierarchy of the human brain.

The first task in the fMRI will be to analyze the existing layer-specific fMRI data. The second task will be to relate the fMRI results to MEG data acquired in the same subjects, allowing us to pinpoint the effects of changes with millisecond and sub-millimeter resolution. The third task will be modelling the observed effects using deep neural networks.

Language requirements:

- IELTS: 6,5 oder TOEFL: 95 ibt or Test Daf 16 bzw. DSH 2

Academic requirements:

Suitable subject areas: cognitive neuroscience, psychology, cognitive science, computer science or related

A Masters degree is required. Experience in the analysis of fMRI data is a big plus, as are very good programming skills.

Information of the professor or research group leader (website, awards etc.):

Website of the research group:

https://www.ewi-psy.fu-berlin.de/en/einrichtungen/arbeitsbereiche/neural_dyn_of_vis_cog/index.html

Awards:

2024: ERC Consolidator Grant 101123101 (PI, 2.3M€) A theory and model of the neural transformations mediating human object perception (TRANSFORM)

2022: Early Career Impact Award from the Federation of Associations in Behavioral and Brain Sciences (FARBS)

2020: Scout of the Henriette Herz Scouting Program of the Alexander von Humboldt Foundation

2020: Neuroimage Paper of the Year

2019 Fellow of the Research Group “Cognitive Behavior of Humans, Animals and Machines: Situation Model Perspectives” (Center for Interdisciplinary Research, University Bielefeld)

Key publications:

Xie S, Singer JJD, Yilmaz B, Kaiser D*, **Cichy RM*** (2025) *Recurrence affects the geometry of visual representations across the ventral visual stream in the human brain.* *PloS Biol* 23: e3003354.

Carricarte T, Xie S, Singer JJ, Trampel R, Huber L, Weiskopf N, **Cichy RM** (2025) *Layer-specific spatiotemporal dynamics of feedforward and feedback in human visual object perception.* *bioRxiv*; doi: 10.1101/2025.05.13.653501v1.

Gifford AT, Jastrzębowska MA, Singer JJD, **Cichy RM** (2025) *In silico discovery of representational relationships across visual cortex.* *Nat Human Behav*; doi: 10.1038/s41562-025-02252-z

Lu Z*, Doerig A*, Bosch V*, Krahmer B, Kaiser D*, **Cichy RM***, Kietzmann TC* (2025). *End-to-end topographic networks as models of cortical map formation and human visual behaviour.* *Nat Human Behav*; doi: 10.1038/s41562-025-02220-7.

Lahner B, Dwivedi K, Iamshchinina P, Graumann M, Lascelles A, Roig G, Gifford AT, Pan B, Jin S, Murtz NAR, Kay K, Oliva A*, **Cichy RM*** (2024) *BOLD Moments: modeling short visual events through a video fMRI dataset and metadata.* *Nat Comm* 15: 6241; doi: 10.1038/s41467-024-50310-3.

Graumann M, Ciuffi C, Dwivedi K, Roig G, **Cichy RM** (2022) *The spatiotemporal neural dynamics of object location representations in the human brain.* *Nat Human Behav* 6: 796–811; doi: 10.1038/s41562-022-01302-0.

Cichy RM, Oliva A (2020) *A M/EEG-fMRI Fusion Primer: Resolving Human Brain Responses in Space and Time.* *Neuron* 107(5): 772-781; doi: 10.1016/j.neuron.2020.07.001.

Cichy RM & Kaiser D (2019) *Deep neural networks as scientific models.* *Trends Cogn Sci* 23(4): 305-317; doi: 10.1016/j.tics.2019.01.009.

Please note:

In a first step, the complete application should be uploaded to the online portal (<https://fuberlin.moveon4.de/form/60acfece5d328710e40bdbd5/eng>) for evaluation by December 15th, 2025.