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 2027

Department/Institute: Education and Psychology

Subject area: Cognitive Neuroscience

Name of Supervisor: Dr. Lynn Sörensen (incoming Guest Professor) & Prof. Dr. Radoslaw Cichy

Number of open PhD positions: 1

Type of the PhD Study: Full-time

Project title: Revealing perceptual mechanisms of human video understanding using human behavior and AI

PhD Project description:

We experience the visual world not frame by frame, but as events that unfold over time. Watching a video reveals causal forces, physical properties, affordances ("Can I walk here?"), and social attributes ("Is this group friendly?") better than a still image could. Remarkably, we seamlessly integrate the present with the past to predict the future, anticipating how objects and agents will behave even when out of view. How the brain weaves together sensory input, recent memories, and world knowledge into these rich representations remains an open problem.

The goal of this PhD position is to characterize the timescales, representations, and computations underlying our understanding gained from videos. To this end, we will design new psychophysics tasks that measure evolving scene understanding in video, establishing the perceptual advantage video offers across tasks. We will then evaluate state-of-the-art video AI models as computational hypotheses, revealing their remaining gaps and developing new mechanisms, which might better capture human video understanding.

Language requirements:

- IELTS: 6,5 oder TOEFL: 95 ibt

Academic requirements:

Suitable subject areas: Cognitive Neuroscience, Psychology, Cognitive Science, Computer science, AI or related.

A Masters degree is required. Experience working with AI models is a big plus as is prior experience in psychphysics.

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

Dr. Lynn Sörensen (incoming Guest Professor, starting Dec 2026)

Awards:
2024 – 2026: DFG Walter-Benjamin Postdoctoral Fellowship for research project at MIT: "Towards a mechanistic understanding of dynamic object perception via high-throughput psychophysics and artificial neural networks"
2026: MIT McGovern Travel & Technology Award
2025: Bernstein Network Travel Award
2023: SFN Trainee Professional Development Award
2021: Vision Sciences Society FoVea Travel & Networking Award
2017 – 2021: NWO Talent Grant PhD Fellowship

Key publications:

Sörensen, L. K. A., Lee, M. J., Masmoudi, A., Kanwisher, N., & DiCarlo, J. J. (2025). Characterizing and modeling time-varying object percepts evoked by naturalistic video. 9th Annual Conference on Cognitive Computational Neuroscience, US.

Sörensen, L. K. A., Bohté, S. M., De Jong, D., Slagter, H. A., & Scholte, H. S. (2023). Mechanisms of human dynamic object recognition revealed by sequential deep neural networks. PLoS Computational Biology, 19(6), e1011169.

Sörensen, L.K.A., DiCarlo, J.J., & Kar, K. (2026). Hierarchical Optimization predicts Plasticity in the Macaque Inferior Temporal Cortex following Object Training. Nature Communications, 17, 8434.

Loke, J., **Sörensen, L.K.A.**, Groen, I.I.A., Cappaert, N. & Scholte, H.S. (2026). Shared texture-like representations underlie deep neural network alignment with human visual processing. Current Biology.

Kietzmann, T.C., Spoerer, C.J., **Sörensen, L.K.A., Cichy, R.M.,** Hauk, O., & Kriegeskorte, N. (2019). Recurrence is required to capture the representational dynamics of the human visual system. Proceedings of the National Academy of Sciences, 116(43), 21854-21863.

Prof. Dr. Radoslaw Cichy

Awards:

2025: GROWUPAI - Visual AI that grows up like the human brain for improved efficiency and robustness (BMFTR, Co-PI with Gemma Roig (GU Frankfurt), 1.1M€)
2024: A theory and model of the neural transformations mediating human object perception (TRANSFORM) ERC Consolidator Grant 101123101 (PI, 2.3M€)
2022: Early Career Impact Award from the Federation of Associations in Behavioral and Brain Sciences (FARBS)
2020-2023: Scout of the Henriette Herz Scouting Programme of the Alexander von Humboldt Foundation
2020: Neuroimage Paper of the Year

Key publications:

Rong B, Gifford AT, Düzel E, **Cichy RM** (2025) The time course of visuo-semantic representations in the human brain is captured by combining vision and language models. eLife; doi: https://doi.org/10.7554/eLife.108915.1.

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.

Gifford AT, Bersch D, St-Laruent M, Pinsard B, Boyle J, Bellec L, Oliva A, Roig G, **Cichy RM** (2025) The Algonauts Project 2025 Challenge: How the Human Brain Makes Sense of Multimodal Movies. arXiv; doi: 10.48550/arXiv.2501.00504.

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.

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 January 15th, 2027.