

Guest Lecture
Thursday, 26.10.2023, 16:15 – 17:45
Room: H7 (Zentrales Hörsaalgebäude)



Title: Immersive Neuroscience: Bringing Cognitive Neuroscience Closer to the Real World

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Abstract.

As a relatively young field, human cognitive neuroscience has relied heavily on reductionist approaches to understanding human brain function. Compared to the natural environment, neuroscience experiments typically utilize simplified stimuli (often images), tasks (often stimulus-response tasks), and experimental situations aimed to isolate putative cognitive processes. Ultimately, however, neuroscience and its applications must understand and enhance brain function in the real world.

This talk proposes a new approach called Immersive Neuroscience, which examines brain function in the real world and compelling simulations such as virtual reality (VR) and video gaming environments. The goal of Immersive Neuroscience is to maximize the realism of the stimuli presented, the tasks that participants perform, and the interplay of cognitive processes.

The talk will provide a theoretical context for why realness matters and how neuroscience can incorporate and validate potential experimental proxies for reality. I will also review a series of experiments that demonstrate that realness matters for the choice of stimuli, tasks, and experimental complexity. I will end with a general discussion of the opportunities and challenges provided by an immersive neuroscience approach.