



Minerva Center
for human intelligence
in immersive, augmented
and mixed realities



Minerva Center for human intelligence in immersive augmented and mixed realities seminar series

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Monday, March 11 at 14:15

Sharet Building
Room 214

Spatial cognition and interaction in extended realities

Recent years have seen amazing progress in the realms of virtual and augmented reality. From expensive niche tools they are transforming into mainstream consumer products, and in the process unlocking huge potential for research. This potential is twofold - on the one hand, we can use these tools to naturalistically test fundamental questions of how we perceive with and interact with our world, while on the other hand we need to research how humans interact with these new worlds in and of themselves. In my talk I will discuss recent work from our lab focusing on both of these aspects from a spatial prism .

First, we will discuss questions of spatial memory and navigation using different reality modalities and interfaces, demonstrating how critical physical motion is for generating naturalistic spatial behavior, and for giving rise to missing neural representations of spatial behavior as we will demonstrate via ECoG recordings. Then we will discuss impossible environments and show how we can use such environments to generate and research sustained sensory clashes to investigate multisensory integration. From there we will turn to demonstrating how humans interact spatially with virtual vs. real objects in mixed reality settings, and the implications of these interactions for the development of practical rehabilitation tools. Finally, I will present some early work from our lab focusing on these tools' potential for rehabilitation from stroke and for facing PTSD and other mental challenges. In conclusion, I will explore the advantages of employing VR in eye tracking research and offer insights into the potential future trajectory of the field.