MAX PLANCK SCHOOL of cognition

Monday, April 7, 2025, 16:00 (CET)

Cognition Colloquium

Professor Peter König

Universität Osnabrück

Embodied Cognition

Embodied cognition proposes that the understanding of cognitive processes must be firmly rooted in our interaction with the environment. Here, we test such theories by recording neurophysiological signals (EEG, MEG) and eye tracking in naturalistic environments using VR techniques. Our results show that aligning trials to saccade-onset leads to more well-defined ERPs, especially for the P100 component, and support that saccade-onset ERPs are the better-suited analysis method than fixation-onset ERPs for this type of experiment. Further, we observe an evolution of condition-based differences, i.e., face vs. background fixations, compatible with previous reports but extending in a large temporal window and including all electrode sites at different points in time. Further, we apply this set of techniques in the wild, i.e., real world conditions and report interims results. Finally, in the context of a task, our data revealed that gaze fixations were allocated to action-relevant targets just in time and that variability of behavior is surprisingly low-dimensional and further reduced at critical events, indicating distinct mechanisms for coordination in the brain. In summary, embracing the concepts of 4E-cognition leads to experimental paradigms delivering quantitatively and qualitatively new results, emphasizing the close bi-directional relation of cognition and action.

Join online:
https://zoom.us/j/93526030034?pwd=ZkJnYlFVOEthU2lDeE5nVmV6TlZLZz09

Meeting ID: 935 2603 0034
Passcode: 250171

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