SFB/TR 8 SPATIAL COGNITION

IQN

SFB/TR 8 Spatial Cognition / IQN Video Conference

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Neural mechanisms of motion and form perception to control visual behavior

Observers extract relevant information from a continuous stream of visual information that impinges the retina. Task-relevant features need to be extracted and represented enabling an agent to interact with the environment. A biologically inspired network architecture is presented that builds upon generic principles of cortical organization and canonical computation, such as topographically organized sheets of interconnected columnar representations, compartmentalization into layers, and converging feedforward and feedback signal flow.

For several key visual tasks it is demonstrated how they can be accomplished using such generic processing principles. Examples are the segmentation of a scene into surfaces by segregating them from the background, calculating optical flow for self-motion estimation and depth encoding, and predicting the behavior of observed articulated body motion. As a brief outlook, recent developments in the modeling of visual processing using event-based sensors are presented.

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  informelle Kaffeerunde: 15:15
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