



ISM Lunchtime Seminar Series

The ISM Lunchtime Seminars are online monthly events, which take place on Thursdays, 13:00-13:30h, and are open to all interested colleagues and students. ISM researchers and guest speakers present their work during a 15 min seminar, in the English language, followed by a brief Q&A session.

We are happy to announce our next speaker: Dana Huvermann, MSc, from the research group of Prof. Dr. Jutta Peterburs.

Title: The cerebellum is involved in coding of reward prediction errors - complementary evidence from stroke patients and cerebellar transcranial magnetic stimulation.

Abstract:

To thrive in our ever-changing environment, we need to be able to predict the consequences of our actions. Processing discrepancies between predicted and actual outcomes to update these predictions is thus essential. The cerebellum has been implicated in the processing of sensory prediction errors (PEs) in supervised error-based learning. However, recent rodent data suggest that the cerebellum also processes PEs in reinforcement learning (RL-PEs; i.e., learning from action outcomes). A proxy of RL-PE coding of the forebrain can be measured in the feedback-related negativity (FRN) in the event-related potential (ERP). FRN largely reflects striatal activity associated with action-outcome processing. We tested whether the cerebellar output is necessary for this striatal RL-PE coding. Two complementary experiments were performed: 1) patients with chronic cerebellar stroke were tested; 2) single-pulse cerebellar transcranial magnetic stimulation (TMS) was applied in healthy participants (virtual lesion approach). RL-PE processing in the FRN was impaired in both patients with cerebellar stroke, and in participants when using cerebellar TMS compared to control (vertex) TMS. Only minor deficits in behavioural flexibility were found. Both experiments thus show that frontal RL-PE processing depends on cerebellar input.

When: 18th April 2024 at 13:00h

Where: MS-Teams (to join, please click [here](#))

Please follow the rules below to make these seminars a success:

- Please use your real name while entering the meeting. Participants with cryptic names will not be given access to the seminar.
- Please turn off your microphone while the seminar is taking place.
- Please feel free to ask questions!

Contact information: Please contact [Dr. Annakarina Mundorf](#) or [Dr. Deeksha Malhan](#) for further information.