



WinterTerm 2024/25 Cognitive Modeling Colloquium

The Cognitive Modeling Colloquium takes place on **Mondays from 9:15 to 10:45** in room C 412, Sand 14, during the lecture period. Please feel free to drop by!

This document lists all lectures that are open to students.

| Date | Speaker | Title and abstract | Participation |
|-----------------|--------------|---|-------------------------|
| Nov 12th | Mudar Adas | How indirect communication can overcome the cognitive biases and the in-group favouritism | Open to students |
| Nov 26th | Manuel Traub | <p>Resolution-independent Object Tracking via Foveal-inspired Multi-scale Patching</p> <p>We propose a resolution-independent object tracking framework leveraging a foveal-inspired multi-scale patching mechanism. By dynamically sampling high-resolution patches near the object center and lower-resolution patches for surrounding context, the method efficiently focuses on critical regions without processing the entire image at high resolution. This foveal-like approach enhances robustness to scale variations and improves tracking accuracy while reducing computational overhead. Specialized attention mechanisms further refine positional and perceptual information for precise object tracking across diverse scenarios.</p> | Open to students |

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| Dec 3rd | Prof. Martin Butz | The Abstraction and Reasoning Corpus challenge - a path towards Artificial General Intelligence? | Open to students |
| Dec 10th | Matthias Karlbauer | Advancing Surface Fluxes with Machine Learning Large scale numerical weather prediction models (NWP) rely on accurate estimates of surface fluxes when unrolling the state of our atmosphere into the future. Surface fluxes describe energy transport from the Earth's surface into higher layers of the atmosphere, which cause turbulence, convection, and precipitation. In this talk, Matse will point out how poor our physical understanding of surface fluxes is and how we can improve with machine learning, which, in the long run, will result in more reliable and accurate weather forecasts. | Open to students |
| Dec 17th | Turan Orulju | Counterfactual Queries Re-Interpreted as In-Context Learning Turan has been working on a causal reasoning model that replaces the attention layer of a transformer with Monte-Carlo tree search to construct a causal graph. In this context, he plans to explore connections between in-context learning and counterfactual queries in causal reasoning during an upcoming talk. | Open to students |