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Ort: HS 162 in der Frangenheimstraße 4 (Geb.-Nr. 213 / EG)

Datum und Uhrzeit: 30. April 2025 14:00 - 15:30 Uhr

Title:

Rethinking the Reliability Paradox: Modeling Individual Differences in Cognitive Tasks

Abstract:

The reliability paradox has commonly been described as the observation that cognitive tasks such as the Stroop task produce robust group-level effects but unreliable individual differences. In this presentation, I will delve into the domain of attentional control, exploring potential causes of the reliability paradox and offering possible solutions for improving the reliability of common tasks in this field. The paradox may arise either from individual performance in cognitive tasks being too variable, or from being not variable enough. To explore these opposing hypotheses, I modeled fluctuations in individual performance throughout experimental blocks and sessions. The findings reveal a surprising level of stability, even across different experimental sessions. Potential solutions to the reliability paradox include utilizing enhanced modeling techniques — such as hierarchical or cognitive models —, collecting more data, and designing new tasks. I will illustrate that hierarchical modeling is essential for understanding the reliability paradox and the amount of data needed, while other more advanced modeling strategies do not contribute much. Additionally, I will discuss the development of new tasks with a focus on validity over reliability.