Title: Simulation-Based Inference for Cognitive Modeling

Instructors: Paul-Christian Bürkner & Stefan Radev

Abstract:

Simulation-based inference (SBI) sits at the intersection of computational statistics and deep learning, accelerating model-based insights across the quantitative sciences. In psychology and cognitive science, SBI makes it possible to mine massive datasets with Bayesian models, quickly iterate on model assumptions, amortize principled Bayesian workflows, and uncover latent cognitive trajectories. This workshop will guide participants from principles to practice. It will provide attendees with a comprehensive overview of the modern SBI landscape, as well as a concrete path from simulation to model deployment using the BayesFlow ecosystem. Using a hands-on approach with multiple use cases, code examples, and exercises, participants will gain a clear understanding of the strengths and limitations of specific SBI techniques and will be encouraged to create and run custom SBI workflows tailored to their own modeling interests.

Assignment: Active participation

Credit: 2 workshop days