Kolloquium „Statistische Methoden in der empirischen Forschung"

Wann: 30. Januar 2024, 17:00 – 18:30 Uhr

Wo: Dieser Vortrag findet ausschließlich ONLINE statt.

Online-Übertragung: der Link wird auf der Website zur Verfügung gestellt

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AI techniques for small data

Biomedical research typically is knowledge-driven, where experiments in basic research or trials in clinical research are carefully designed based on prior knowledge to subsequently answer specific questions. Still, data-driven discovery of structure without strong prior hypotheses has been successful in at least a few selected sub-fields, particularly relying on recent methods from the field of artificial intelligence (AI). The latter so far often require large volumes of data, e.g., to make artificial neural networks with their large number of parameters feasible. Yet, there is now an emerging field of methods research focusing on enabling such modeling also in small data settings. A part of this research focuses on incorporating of knowledge-driven approaches. I will provide an overview of this emerging field and indicate how it might also enrich biomedical research. This is illustrated with exemplary application settings, addressed by the recently started Collaborative Research Center "Small Data" (https://www.smalldata-initiative.de) in Freiburg. Further pillars of small data methods research, such as few-shot learning, meta-learning, and foundation models, such as large language models, will also be briefly discussed.