Inference and Causality

Course Description

Statistical inference and causal analysis are crucial tools for analyzing and understanding data at a fundamental level. This course starts with an introduction to Bayesian inference and Bayesian networks, which use probabilities to describe statistical problems, and introduces probabilistic modelling, which allows the specification of Bayesian statistical models in code. The course introduces the concepts of causality, how causality relates to correlation between variables, and discusses the fundamental building blocks of causal analysis. The effects of interventions (i.e., when the experimenter actively changes the setup from which the data are taken) are also discussed. The course then introduces the rules of do-calculus, which allows interventions to be described formally. Finally, the course discusses a wide range of typical fallacies that arise in the context of causal analysis.

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   3. Directed Acyclic Graphs (DAG)
   4. Elements of Causal Graphs: Collider, Chain, Fork
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