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EINLADUNG ZUM KOLLOQUIUM

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(München)

The causal nature of modeling in data-intensive science

I argue for the causal character of modeling in data-intensive science, contrary to wide-spread claims that big data is only concerned with the search for correlations. After introducing and discussing the concept of data-intensive science, several algorithms are examined with respect to their ability to identify causal relationships. To this purpose, a difference-making account of causation is proposed that broadly stands in the tradition of David Lewis's counterfactual approach, but fits better the type of evidence used in data-intensive science. The account is inspired by causal inferences of the Mill's method type. I situate data-intensive modeling within a broader framework of a Duhemian or Cartwrightian scientific epistemology, drawing an analogy to exploratory experimentation.

Wolfgang Pietsch is assistant professor without tenure at the chair for philosophy of science of TU München. He first studied physics at the Humboldt Universität zu Berlin and then switched to philosophy of science for a dissertation on time asymmetries in physical theories. Currently, his main research interest concerns scientific method. He is looking in particular at the relationship between causation, probability, and induction in various contexts of application, for example engineering and data-intensive science.

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