

When is data analysis scientific?

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Abstract

Can methods from data science be used to construct useful scientific knowledge? Any answer to this must be based on how useful scientific knowledge is socially constructed by communities of human experts who choose to organize their research communities in particular ways. By using ideas from the history, sociology, and philosophy of science, engineering, and mathematics, I will present a pragmatic perspective on scientific activity that provides criteria for evaluating the scientific content of data analytic efforts. From this perspective, I will show how some data analysis methodology can represent a retreat from careful, responsible practice towards pre-scientific forms of knowledge-building.