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On the role of latent variable models in the era of big data

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Abstract

We discuss how latent variable models are useful to deal with the complexities of big data from different perspectives: simplification of data structure; flexible representation of dependence between variables; reduction of selection bias. Problems involved in parameter estimation are also discussed.

Keywords: Bayesian inference, Complex data, Maximum likelihood estimation, Parallel computing, Selection bias

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1. Introduction

Big data present different types of complexity that go well beyond their mere size and make their use problematic, possibly leading to biased conclusions on the main investigated effects. We discuss the role of latent variable

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