

Influence and Robustness in Statistical Modeling

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Abstract

Graphical models allow to represent a set of random variables together with their probabilistic conditional dependencies. Various algorithms have been proposed to estimate such models from data. Our first focus is on individual observations diagnosis issues. The use of an influence measure is a classical diagnostic method to measure the perturbation induced by a single element, in other terms we consider stability issue through jackknife. For a given graphical model, we provide tools to perform diagnosis on observations. In a second step we propose a filtering of the dataset to obtain a stable network. An application to a gene expression dataset illustrates the proposals.