



复旦大学数学科学学院 数学综合报告会

报告题目: **Part mutual information for quantifying causal associations in networks**

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摘要: Quantitatively identifying direct dependencies between variables is an important task in data analysis, in particular for reconstructing various types of networks and causal relations in science and engineering. One of the most widely used criteria is partial correlation, but it can only measure linearly direct association and miss nonlinear associations. However, based on conditional independence, conditional mutual information (CMI) is able to quantify nonlinearly direct relationships among variables from the observed data, superior to linear measures, but suffers from a serious problem of underestimation, in particular for those variables with tight associations in a network, which severely limits its applications. ...

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