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LEARNING THE STRUCTURE OF GRAPHICAL MODELS BY COVARIANCE QUERIES

Abstract: We study the problem of recovering the structure underlying large Gaussian graphical models. In high-dimensional problems it is often too costly to store the entire sample covariance matrix. We propose a new input model in which one can query single entries of the sample covariance matrix. We present computationally efficient algorithms for structure recovery in Gaussian graphical models with low query and computational complexity that works for graphs with small treewidth.

In my talk I want to present basic ideas which I learned working on this project and tell you a story of how algebraic statistics met randomised algorithms.

This talk is based on joint work with Gábor Lugosi, Jakub Truskowski, and Vasiliki Velona.

References:

- [1] G. Lugosi, J. Truskowski, V. Velona, and P. Zwiernik (2019) Structure learning in graphical models by covariance queries. arXiv:1906.09501.