Sparse Precision Matrix Estimation via Vector Half Operator

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Abstract

Estimation of an inverse covariance matrix which is often called precision matrix is a fundamental problem in multivariate analysis. In this talk, we study a method for estimating the sparse precision matrix using the vector half operator. This procedure can be viewed as a linear regression analysis, and hence can be easily implemented. We study theoretical performances of the proposed method under a high-dimensional framework where both the sample size and the dimension tend to infinity. The convergence rates are obtained under the ℓ_2 norm and the ℓ_∞ norm. It is also shown that the proposed estimator can recover the sparse pattern of the precision matrix.