



THE UNIVERSITY OF  
**CHICAGO**

Department of Statistics

MASTER'S THESIS PRESENTATION

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Adaptive Thresholding Method to Estimate Sparse  
Covariance Matrix

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ABSTRACT

In this paper, we consider the estimation of large sparse covariance matrices, and propose an adaptive thresholding method that adapts to the variability of entries in the sample covariance matrix. We introduce and compare the universal thresholding method and adaptive thresholding method in the sparse covariance matrix estimation problems. Thresholding functions, convergence rate, and support recovery are considered, and the results show that adaptive thresholding performs better than the universal thresholding. To illustrate this point, we compare the numerical performance of these two methods. Simulation study and analysis of a dataset of an experiment on cardiovascular patients are used here.

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