SUMANTA BASU, Cornell Uniersity

Frequency-domain graphical models for multivariate time series

Graphical models offer a powerful framework to capture intertemporal and contemporaneous relationships among the components of a multivariate time series. For stationary time series, these relationships are encoded in the multivariate spectral density matrix and its inverse. We will present adaptive thresholding and penalization methods for estimation of these objects under suitable sparsity assumptions. We will discuss new optimization algorithms and investigate consistency of estimation under a double-asymptotic regime where the dimension of the time series increases with sample size. If time permits, we will introduce a frequency-domain graphical modeling framework for multivariate nonstationary time series that captures a new property called conditional stationarity.