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Seminar Title:
Partial correlation using Gaussian Copula

Seminar Abstract:

By a theorem due to Sklar in 1959, a multivariate distribution can be represented in terms of its underlying margins by binding them together a copula function. Copulas are useful devices to explain the dependence structure between variables by eliminating the influence of marginals. A copula method for understanding multivariate distributions has a relatively short history in statistics literature; most of the statistical applications have arisen in the last twenty years. In this talk, copula history and its applications will be briefly introduced. Furthermore, We propose an alternative approach to obtaining partial correlation based on copula. We also consider the empirical study based on the proposed method, illustrating that the Gaussian copula partial correlation is easy to compute and it provides the same value with the Pearson's partial correlation. In addition, we apply the proposed method to a real application incorporated with the concept called vine. Specifically, with the proposed method based on canonical vine and d-vine, we capture the direct interactions among eight histone genes.