Lecture 10.2 (02:25-02:50)

Weighted estimation with copula-based divergence

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We propose a new family of divergences for copula models. The proposed family is a function of copulas expressed as cumulative distribution functions and does not require the calculation of probability density functions. Applying our family of divergences, we introduce a new class of estimators of parameters of copula models. This class of estimators includes some existing estimators as special cases. The tuning parameter of our estimator controls weights in domains, particularly tails, of copulas, allowing for its application in weighted estimation. It is seen that consistency and asymptotic normality hold for the proposed estimator. A simulation study is given to evaluate the performance of our estimator. Finally, the proposed estimator is applied to financial data for which weighted estimation is required.

This is joint work with Shinto Eguchi of the Institute of Statistical Mathematics, Japan and Toshinao Yoshiba of Tokyo Metropolitan University, Japan