

Dependence modeling via conditional, partial and average copulas: inference and applications

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In modeling dependencies via copulas the concepts of unconditional and conditional copulas have been widely studied in the literature. Since many association measures (Kendall's tau, Spearman's rho, ...) can be written as functionals of a copula, inference for these quantities follows from that of the copulas. In this talk we will also discuss the notions of partial and average conditional copulas and association measures.

The emphasis in this talk is on semi- and nonparametric estimation of (un)conditional, average conditional and partial copulas and association measures. Conditional copulas couple conditional marginals to result into the conditional joint distribution function. A special situation occurs when the conditioning on a covariate(s) is such that it only influences the marginal distributions and not the copula. This simplifying assumption is often made in applications, but testing for it only received attention in recent years. We briefly discuss inference under this setting and testing for the simplifying assumption to hold.

We provide some illustrations of the various notions and methods and briefly illustrate their use in applications.

This talk is mainly based on joint work with Marek Omelka and Noël Veraverbeke.