Joint Statistics Seminar

The Hong Kong University of Science and Technology

Pair-copula Constructions of Multiple Dependence

by

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Date: September 7, 2007 (Friday)
Time: 4:00 p.m. – 5:00 p.m.
Venue: Room 3412 (Lift 17 & 18)

Abstract

Building on the work of Bedford, Cooke and Joe, we show how multivariate data, which exhibit complex patterns of dependence in the tails, can be modelled using a cascade of pair-copulae, acting on two variables at a time. We use the pair-copula decomposition of a general multivariate distribution and propose a method to perform inference. The model construction is hierarchical in nature, the various levels corresponding to the incorporation of more variables in the conditioning sets, using pair-copulae as simple building blocks. Pair-copula decomposed models also represent a very flexible way to construct higher-dimensional copulae. We apply the methodology to a financial data set. This is joint work with K. Aas, A. Frigessi and H. Bakken.

References:

K. Aas, C. Czado, A. Frigessi and H. Bakken (2007). Pair-copula constructions of multiple dependence, Insurance, Mathematics and Economics, DOI 10.1016/j.insmatheco.2007.02.001.

D. Kurowicka and R. Cooke (2006). Uncertainty analysis with high dimensional dependence modelling, Wiley, Chichester.

T. Bedford and R. M. Cooke (2002). Vines - a new graphical model for dependent random variables, Annals of Statistics, 30, 4, 1031--1068.

❖All interested are welcome! ❖

For details, please contact ISMT Department.