Statistical Information Theory Meets Copulas

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Abstract

The aim of this talk is to present a link between statistical information theory with the theory of copulas. Measures of statistical information are omnipresent quantities, and they receive considerable attention in many fields. These measures are popular because of their diverse conceptual interpretations and their applications in solving practical problems across fields like probability, statistics, engineering, and economics. This talk will overview broad classes of measures of information which are defined by means of the probability density function. Properties of these measures will be briefly mentioned and applications of the said measures in several disciplines and frames, from estimation and testing of hypotheses to canonical correlation analysis, will be also briefly exposed. Recent reconsiderations of measures of information, defined in terms of the distribution function instead of the density, will be presented. This approach bridges statistical information theory and copula theory, enabling collaborative exploitation of both research areas to formulate, develop, and address problems in both fields. Some preliminary results in the light of extreme value copulas will be presented.

Keywords

Measures of Information, Divergence, Extreme value Copula, Pickand's Dependence Function.

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