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Minimum Information Dependence Model for Mixed-Domain Data and its Application

Keisuke Yano
The Institute of Statistical Mathematics, Tokyo, Japan

Abstract

We propose a method of dependence modeling for a broad class of multivariate data. Our class is characterized by two orthogonal sets of parameters: the parameters of dependence and those of marginal distributions. We present the existence and uniqueness theorem for our model. To estimate the dependence parameter, we establish conditional inference together with a sampling procedure and show its consistency. We also discuss the information-geometrical structure and the connection to the entropic optimal transport and the Schrodinger bridge problems. Finally, we illustrate an application to the earthquake data.

Keywords:
Conditional Inference; Copula; Dependence; Optimal Transport.