Efficient Bayesian Inference for Gaussian Copula Regression Models

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Abstract: The presentation deals with Bayesian inference for a Gaussian copula model and makes the following contributions. First, it presents a general Bayesian approach for estimating a Gaussian copula model that can handle any combination of discrete and continuous marginals. Second, it proposes a method to parsimoniously model the correlation matrix in the Gaussian copula by using a prior that allows the off-diagonal elements of the inverse of the correlation matrix to be identically zero. Third, we show how to construct a novel and efficient simulation method for carrying out posterior inference. Fourth, the methods are applied to simulated and real data sets and are demonstrated to work well empirically.