



Contribution ID: 85

Type: **not specified**

Estimating Multivariate Generalized Gamma Convolutions via Kernel Stein Discrepancy

This work focuses on the estimation of multivariate generalized gamma convolutions (MGGC), a class of distributions widely used in risk modeling for which no closed-form density is available. In practice, only their characteristic functions are known, which makes standard estimation methods such as maximum likelihood inapplicable. To overcome this difficulty, we adopt an RKHS-based approach and use the Kernel Stein Discrepancy (KSD) as an estimation criterion. More precisely, we develop a method to identify a Stein operator for multivariate MGGC from their characteristic function only, leading to a tractable expression of the associated Stein kernel and KSD. We also highlight the link between the Stein operator, the underlying subordinator, and the Lévy measure of GGC distributions. Finally, we illustrate the relevance of the proposed approach through several numerical experiments.

Special/ Invited session

Classification

Mainly methodology

Keywords

Generalized Gamma Convolutions -RKHS - Stein Operator

Primary authors: Ms MASIELLO, Esterina; GONIN, Léo (Institut Camille Jordan); MAUME-DESCHAMPS, Véronique (Institut Camille Jordan, Université Claude Bernard Lyon 1)

Presenter: GONIN, Léo (Institut Camille Jordan)

Track Classification: Statistical / Stochastic Modelling and Statistical Computing