

Estimation for a Riemannian Ornstein-Uhlenbeck Process on Covariance Matrices

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A generalization of the Ornstein–Uhlenbeck process to the cone of covariance matrices endowed with the log-Euclidean and the affine-invariant metrics is presented. The development exploits the Riemannian structure of symmetric positive definite matrices viewed as a smooth manifold. Bayesian inference for discretely observed diffusion processes of covariance matrices is then carried out based on an MCMC algorithm. Our proposed algorithm is illustrated with a real data financial application.

This is joint work with Prof. Petros Dellaportas (UCL) and Dr Bui Ngoc Mai (British University Vietnam)