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Markov Component Analysis

Joint with Niels Aske Lundtorp Olsen and Lars Lau Rakêt

Given discretely sampled observations of a multivariate Gaussian temporal process a non-parametric likelihood estimation of the variance operator is proposed. The estimated variance operator has full rank, and it can be interpreted as the variance operator for a sum of independent Markov processes. We present the algebra calculus for the used class of operators and their matrix projections. These matrices have a sparse representation and matrix multiplication and inversion can be done in linear time. This computational property implies that this methodology is applicable to densely sampled functional data.