Change Point Detection in Functional Time Series

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Abstract

We consider functional autoregressive processes observed on a sparse grid with noise. Using robust Kalman filtering and blocked Gibbs sampling, we fit a state-space model. The interest is in detection of change point in any of the three parameters, the mean, the variance and the autocovariance operator. Identifying the posterior mode as the change point, we obtain very promising results in simulations under several situations. We apply the method to obtain change points in daily patterns of high frequency financial data.