Bayesian Regression on Curves with a high Number of Regressors

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Manuscript in progress

Abstract

Here we consider a multivariate regression setting where data arise as curves and where the number of predictors largely exceeds the number of observations. We present a typical application in spectral calibration. This kind of problems can be handled either by selecting variables in the original model space or by using dimension reduction techniques that select derived variables. We first review some of our work in Bayesian variable selection, where mixing priors and Markov chain Monte Carlo methods are employed. We then show how curves can be transformed into sets of wavelet coefficients and apply a Bayesian decision theory approach to select those coefficients that predict well the multivariate response.

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