

Bayesian Variable Selection with Application to High Dimensional EEG Data

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Abstract: Due to the immense technological advances, very often we encounter data in high-dimensions. Any set of measurements taken at multiple time points for multiple subjects leads to data of more than two dimensions (matrix of covariates for each subject). In this talk, we present a Bayesian method for binary classification of subject-level responses by building binary regression models using latent variables along with the well-known spike and slab priors. We also study the scaled normal priors on the parameters, as they cover a large family of distributions. Due to the computational complexity, we build many local (at different time points) models and make predictions using the temporal structure between the local models. We perform variable selection for each of these local models. If the variables are locations, then the variable selection can be interpreted as spatial clustering. We show the results of a simulation study and also present the performance of these models on multi-subject neuroimaging (EEG) data.