Linear Discriminant Analysis with High-dimensional Spatial Data

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The rapid development of information technology is making it possible to collect massive amounts of multidimensional, multimodal data with high dimensionality in diverse fields of science and engineering. New statistical learning and data mining methods have been developing accordingly to solve challenging problems arising out of these complex systems. In this talk, we will discuss a specific type of statistical learning, namely the problem of feature selection and classification when the features are spatially dependent. Various Machine Learning techniques are suitable for this type of problems although the underlying statistical theories are not well established. We will discuss linear discriminant analysis based technique under spatially dependent features and discuss their theoretical and numerical performances. The work is motivated from brain imaging data analysis.