KU LEUVEN

Support Vector Machines

Assignment 3: Unsupervised Learning

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Context

The analysis presented in this report was produced for the class of "Support Vector Machines: methods and applications" at KU Leuven (Spring 2016). The goal is to display understanding of the principles behind support vector machines and of how to work out good solutions using these techniques. This third report focuses on unsupervised learning (kernel PCA) using Least-Squares SVM (LS-SVM). The implementation was done using the MatLab environment (v2015a) and the libraries for LS-SVM developed at KU Leuven [1].

1 Kernel Principal Component Analysis

2 Handwritten Digit Denoising

3 Spectral Clustering

4 Fixed-size LS-SVM

5 Applications

5.1 Handwritten Digit Denoising

5.2 Shuttle (statlog)

5.3 California

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[1]http://www.esat.kuleuven.be/sista/lssvmlab/