Learning Vector Quantization and Relevance Learning: recent extensions and example applications in bioinformatics and medicine

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Abstract

Learning Vector Quantization (LVQ) constitutes a popular familar of supervised distance-based classifiers. The method is easy to implement andthe resulting classification can be interpreted intuitively. Furthermore, LVQ is straightforward to apply to multiclass problems. We discuss the basic concepts and recent extensions in terms of example applications in bioinformatics and medical data sets.

The focus will be on relevance learning schemes, which determine a suitable distance or similarity measure in the course of the training process. Our recently introduced method of relevance matrices takes into account correlations between different features and provides insights into the nature of the problem at hand. It can furthermore be used to obtain discriminative visualizations of complex data sets.