

Semester / Master Thesis:

# Unsupervised SVM for Abstract Acoustic Elements Classification

**Motivation and Informal Description:** In this project we are aiming to classify the sound units by means of unsupervised SVM. Sound units (abstract elements or acoustic units) can be seen as the constitutive units of speech signals and SVM is a very well-known classification method which is commonly used in machine learning applications. To determine an appropriate set of sound units, one has to extract them from the speech data. This can be done by classifying the sound units in speech signals. Currently, the conventional K-mean clustering algorithm is used for their classification. However, it does not always result in satisfactory performance, especially when the class means are close or there is a large overlap between different sound units. To overcome this problem, we want to try some other strong classifiers like SVM and compare the results with the K-mean approach.

The work can be done as a semester thesis or Master thesis. In case of Master thesis, some other classification methods like random forest and adaBoost will also be implemented and compared.

**Requirements:** Some background in speech processing or machine learning would be preferable.

**Interested? Please have a look at <http://www.tec.ethz.ch/research.html> and contact us for more details!**

## Contacts

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