

Report

Period: Oct. 17-23, 2014

Task: Simulating and estimating multimodal emotion recognition using different multimodal emotion databases

Subtasks: SVM training and classification, Performing simple actions on NAO, Analyzing facial and vocal data

1 Task 1

Using SAVEE database I have examined the performance of SVM on the emotions of happiness of all 4 male actors and measured the recognition rate of the classifier. For my simulation I have used the pitch and intensity of all audio signals of their speeches as feature values and 'happiness' and 'sadness' emotion labels. Different values of recognition rate of SVM have been obtained using different kernel functions such as: radial basis function, linear, quadratic, polynomial, etc. The highest value of recognition rate is 86.67% using radial basis function (rbf) where $\sigma=1$ and $\sigma=0.1$. Other values for recognition rate of SVM are shown below:

	Recognition rate
Kernel function (linear)	83.06%
Kernel function (quadratic)	84%
Kernel function (polynomial 3 rd order)	84.52%
Kernel function (rbf, $\sigma=1$)	86.67%
Kernel function (rbf, $\sigma=0.5$)	86.48%
Kernel function (rbf, $\sigma=0.1$)	86.67%
Kernel function (rbf, $\sigma=0.01$)	83.48%

2 Task 2

Using Choregraph program perform simple action on the NAO humanoid robot.

3 Task 3

Analysing the facial and vocal emotion recognition by AV clips recorded on the Kinect camera.

Tasks for the Next Week

1 I am planning to create a database for feature data for all 7 basic emotions using as many features as possible to evaluate the performance of SVM by doing one-vs-all binary classification for each of the emotion.

2 Simulating the results of Multimodal Emotion Recognition of four and five categories by using ensemble of trees of binary SVM classifiers.