Assignment #2: Facial Expression Classification

Date: 11/2/2020

(Points: 100)

Abstract: The most expressive way humans display emotions is through facial expressions. Humans detect and interpret faces and facial expressions in a scene with little or no effort. Still, development of an automated system that accomplishes this task is rather difficult. In order to achieve effective **human-computer intelligent interaction** (HCII), there is a need for the computer to be able to interact naturally with the user, similar to the way human-human interaction takes place. This emerging field has been a research interest for scientists from several different scholastic tracks, **i.e., computer science, engineering, psychology, and neuroscience**.

Problem: Facial Expression Classification using Support Vector Machines (SVM). Facial Expression Recognition Challenge (Fer2013.csv) dataset will be used. The dataset consist of seven different emotions; Angry, Disgust, Fear, Happy, Sad, Surprise and Neutral. icml_face_data.xls is the file to read the data.

Exp#1: Train and test multi-class linear and non-linear SVM (rbf and poly) for facial expression classification using the above dataset. Accuracy

Exp#2: Use ensemble classification tools such as Bagging and Boosting to enhance the performance of the system. Accuracy

Deliverables:

1. Code (50 points)
2. Report with the steps followed and the results obtained. (50 points)