



## Data Analytics

110-2 Homework #07

**Due at 23h59, May 8, 2022; files uploaded to NTU-COOL**

1. (45%) Practice and discuss the results of Logistic Regression (LR),  $k$ -Nearest Neighbors ( $k$ NN), and Support Vector Machine (SVM) on the ORL face dataset.
2. (30%) Considering the parsimonious principle in modeling, set up LR,  $k$ NN, and SVM models using as few variables (pixels) to get as close as possible to the results in EX1.
3. (45%) Look for the multiclass classifiers in Logistic Regression,  $k$ -Nearest Neighbors and Support Vector Machine. Apply them to analyze AutoMPG and discuss the results. The target is to classify the “origin” of the car and “mpg” can be included in the  $\mathbf{X}$ .