Environment: **Anaconda3**

Package needed for running the code: **tqdm; numpy; os; matplotlib; time**

1. **Run *obtain_Harr_Map.py*.**

   (Obtain the construct of Harr features, including location, size, etc. The Harr Map is saved as Harr1Map; Harr2Map; Harr3Map; Harr4Map; HarrMap for finding the feature selected by AdaBoost conveniently)

2. **In *Harr_feature_training.py*, change the directory in line 7 & 8, then Run.**

   (Obtain the Harr feature array for all the training sample. The array is saved as 'trainingset.npy'. Takes about 6 minutes to run.)

3. **In *main_train.py*, change the path directory in line 5 & 6, then Run.**

   (perform ERM decision stumps on the training set. Estimate taking 2.5 hours based on AMD Ryzen 5 3600 3.6GHz CPU

4. **In *main_test.py*, change the path directory in line 6 & 7, then Run.**

   (Based on the trained threshold, polarization and feature selected, perform test on the testing database. Since the testing database are mostly skewed faces that have very different characteristics as the original data test, the testing does not perform well. However, it does perform well on the non faces images.)