Machine Learning 2017

Final Project：Apparent Age and Gender Classification

Proposal: **2017.05.31**

Demo: **2017.06.19 – 06.22**

(For those who need to demo early, please contact with the professor and also inform the TAs)

Report and code**: 2017.06.23 23:59:59**

In this project, you are asked to classify the input photos into 4 age groups and 2 genders. You are free to use any methods, tools, and language to finish this work.

If you want to use any work that is not built by you, be sure to specify it in your report. Also, just repeating other people's work won't help you get high score in this subject, be sure to include your own idea in this work.

A. Input: the input will be an RGB photo or Gray level photo with different size, here are some examples:

The photos above are from the class child, young, adult, and elder, respectively.

The dataset is under preparing, we will finish it soon. Also we will first give you some examples.

You are only allowed to use the photos in this dataset. (Data augmentation is permitted)

We may randomly pick some team's work to retrain it to check if the result is far differed from your submission.

B. Target

For each photos, please classify it into one of the following classes

0:male child	1:male young	2:male adult	3:male elder
4:female child	5: female young	6: female adult	7: female elder

You can predict age and gender jointly or separately, but the final result need to be one of the classes above.

Demo: We will give you multiple photos, the name will start from 0.jpg to X.jpg, X will be announced that day, and you need to output the result into a "result.csv" file, the format should be like this:

	A	B
1	0.jpg	0
2	1.jpg	2
3	2.jpg	5

Your demo result will be evaluated by your model's correct rate.

C. Report

Proposal(10mins): You need to do an oral report (ppt) to the TAs about your idea and team work. If you finish some part of the work or face some difficulties, you can also include it in your report and discuss with us. You can get a full score just by doing this on time.

Demo(15mins): You need to do an oral report to the professor, and also bring the hard copy of your paper report that day. The report should contain your idea, result, and any discussion that you think the professor will like.

D. Submission

There are 2 things you need to submit

1. Proposal report (5/30 23:59:59): your ppt of the oral report.
2. Source code and Paper report (6/23 23:59:59): All of your final source code, including a readme.txt file to inform how to use them. And your paper report that you bring at the Demo day.

3. Submit all things to E3. (組別_學號_proposal.zip/rar　組別_學號_final.zip/rar)

E. References

Here are some references that might help you, you are free to use them or search anything else you need. (Remember to specify anything that is not made by you on your report)

1. Face detector:

   Matlab: vision.CascadeObjectDetector System object

   Python(OpenCV): Face Detection using Haar Cascades

   Or you can also search anything else you need

2. Digital image processing:

   Image scaling : Matlab and OpenCV have the functions to do the work.

   Gray level = RGB share the same value (ex: for gray level =128 → R=G=B=128)

3. The course's syllabus contains lots of links that are related to machine learning, take a look at it!