FACE ALBUM

Praktikum Informatik I WS2017

Zheng Li 0906101

General Informations

Git repository

https://github.com/seconddream/face_album.git

Documentation

Under git repository sub folder "documents"

- Protocol
- Design decision document
- Project schedule timeline
- User instruction for prototype application
- Final report

General approaches

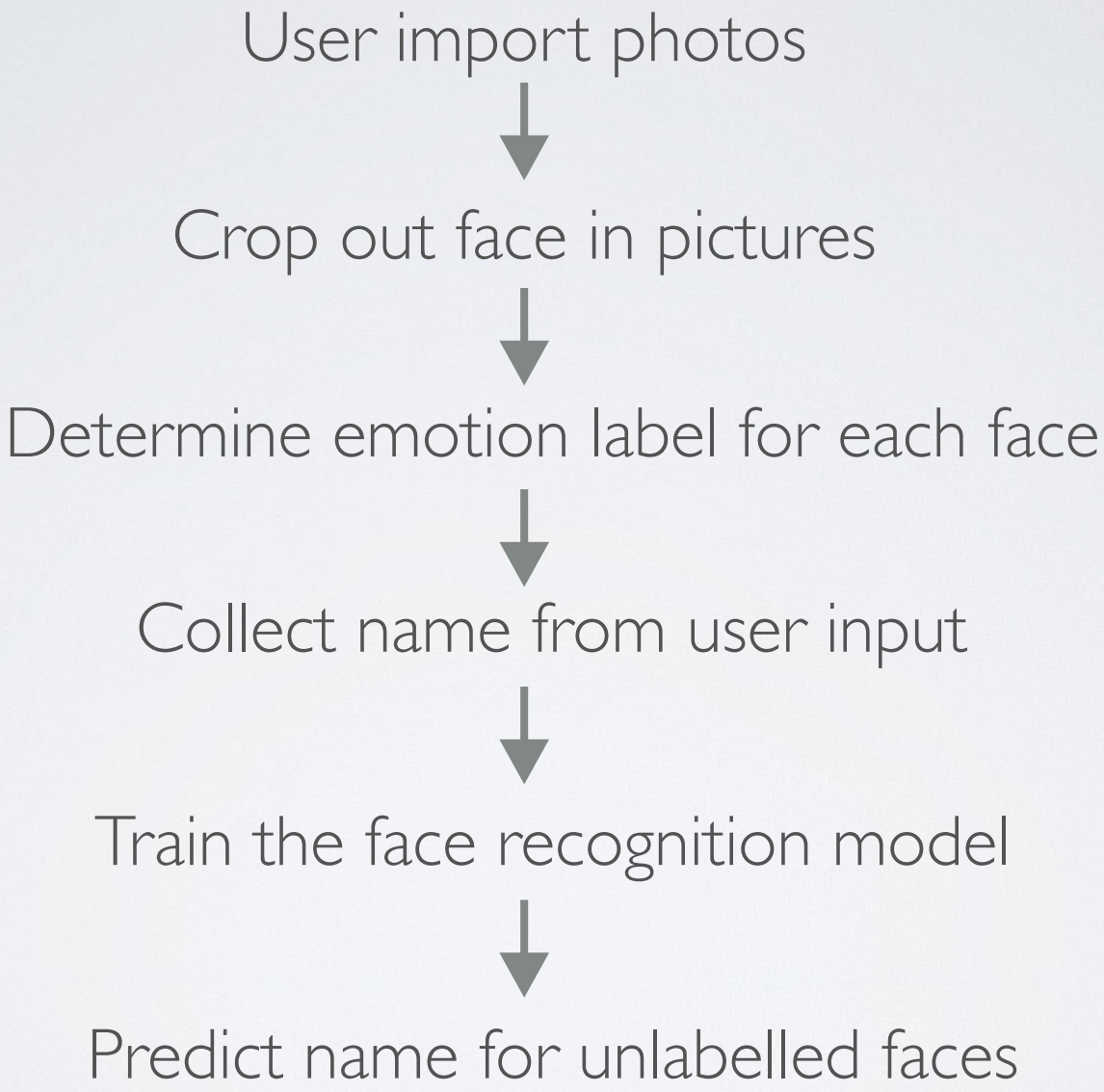
Platform

Python + Open CV + Tensor flow

Key focus points

- Face detection (Haar-like classifier)
- Face recognition (Local binary patterns histograms)
- Emotion classification (Tensor flow for poet)

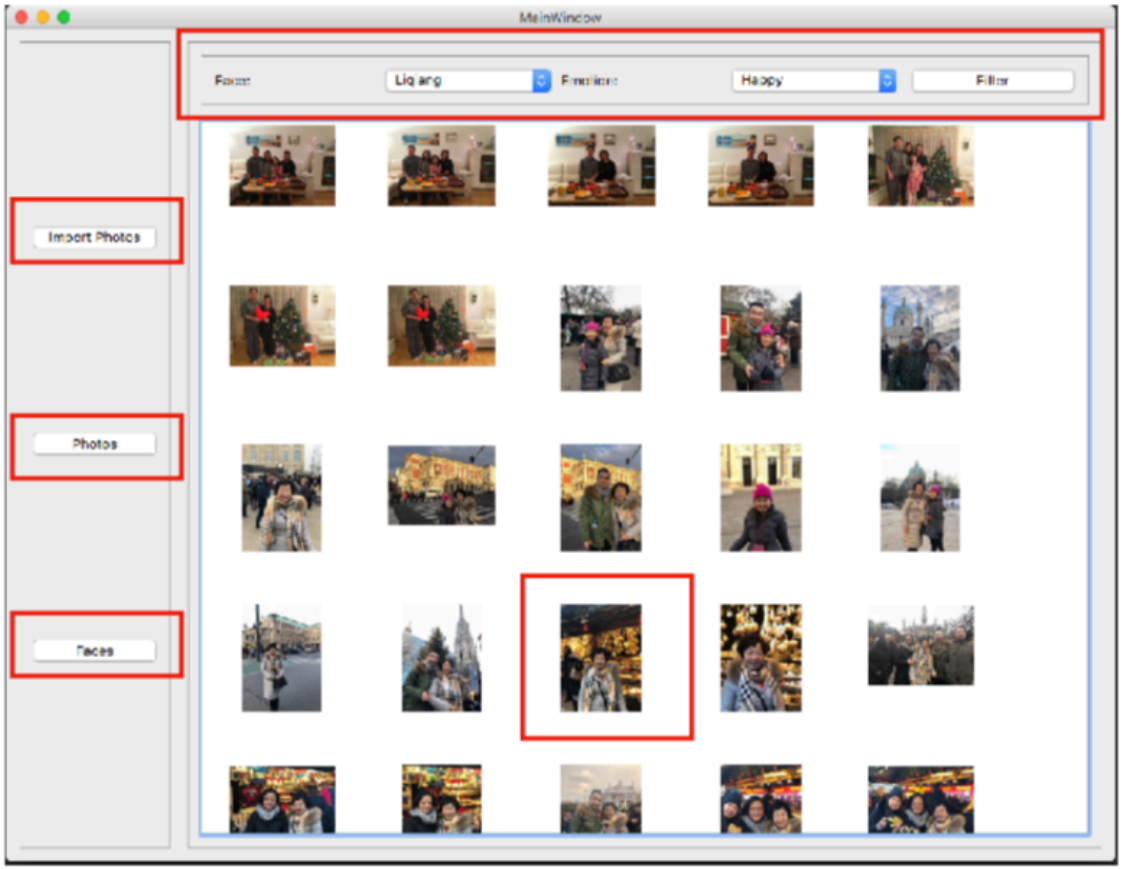
Workflow of the prototype



Prototype demo

Main Window

Filter function, choose a face and emotion, press filter button



Import new photo

Return to whole library after filtering

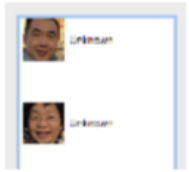
Go to face window

Double click a photo to view it

Prototype demo

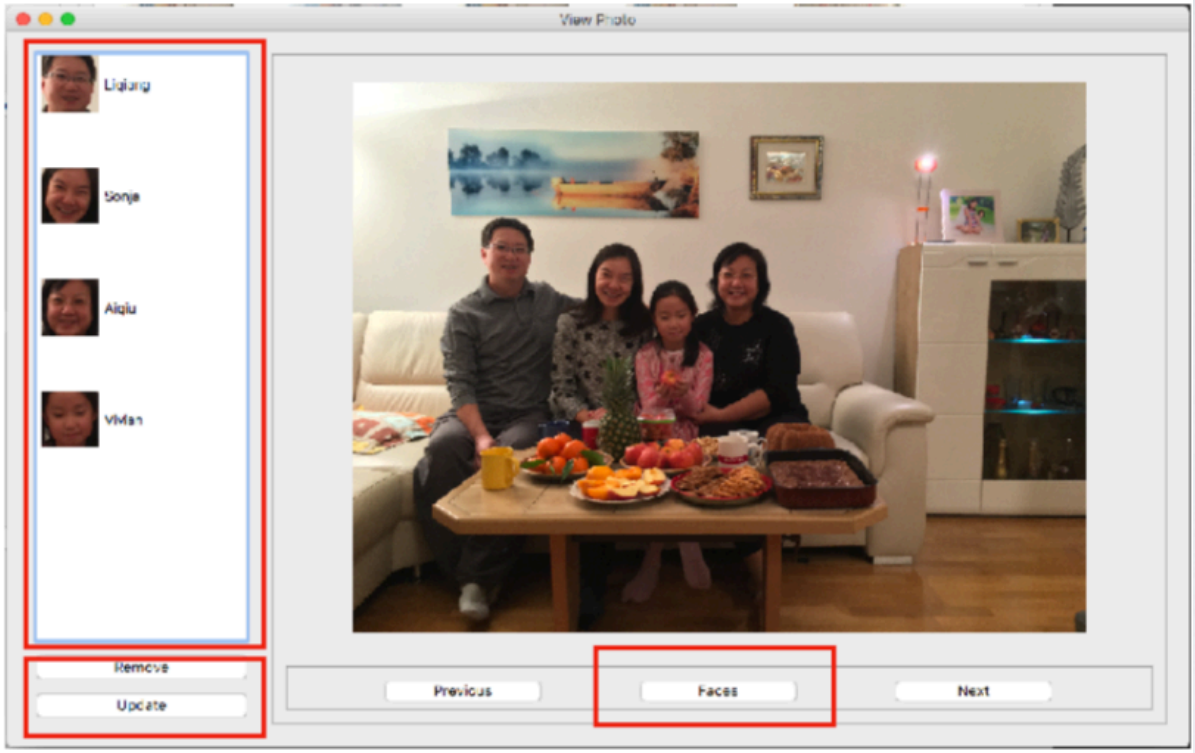
Photo Viewer

Face found in the picture, after a few times user name the face, the face recogniser will know who the person is.



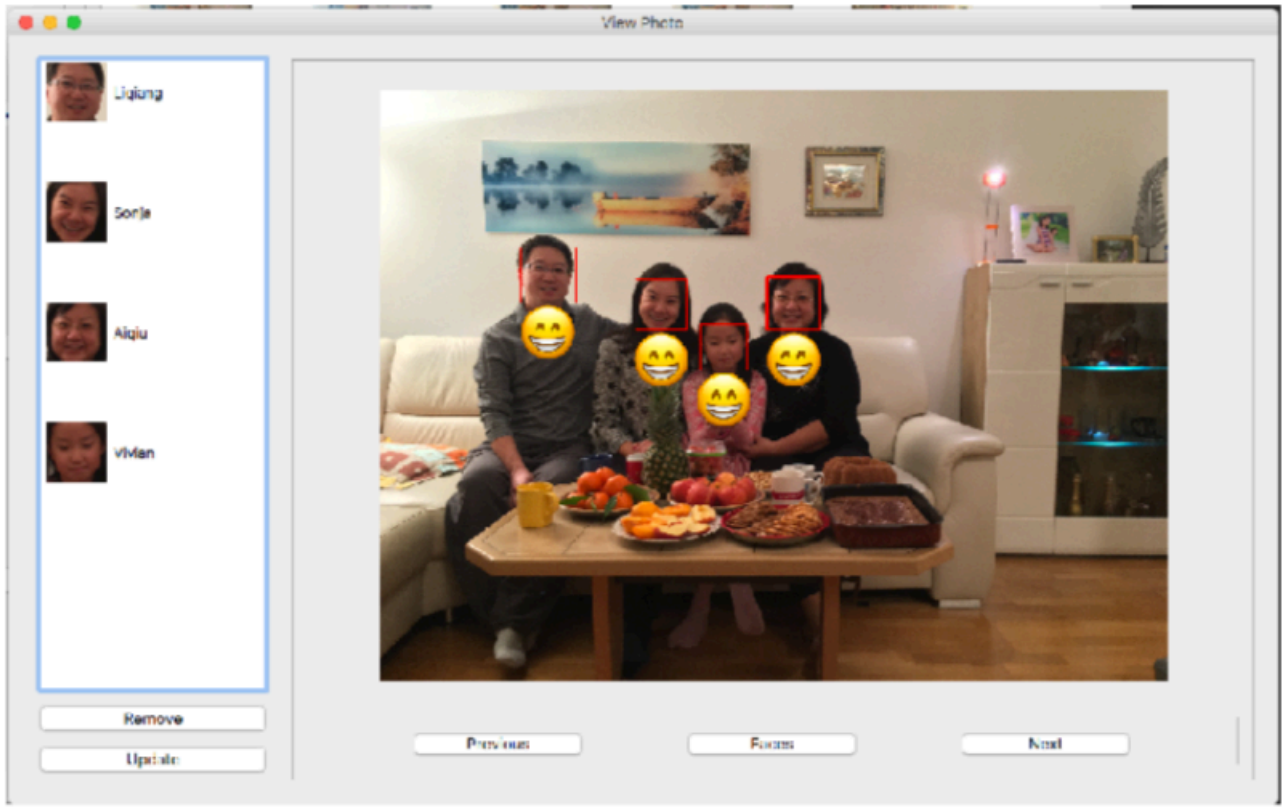
Face unknown yet

False Positive face can be removed, unknown face can be updated, just double click the face and give it a name and update



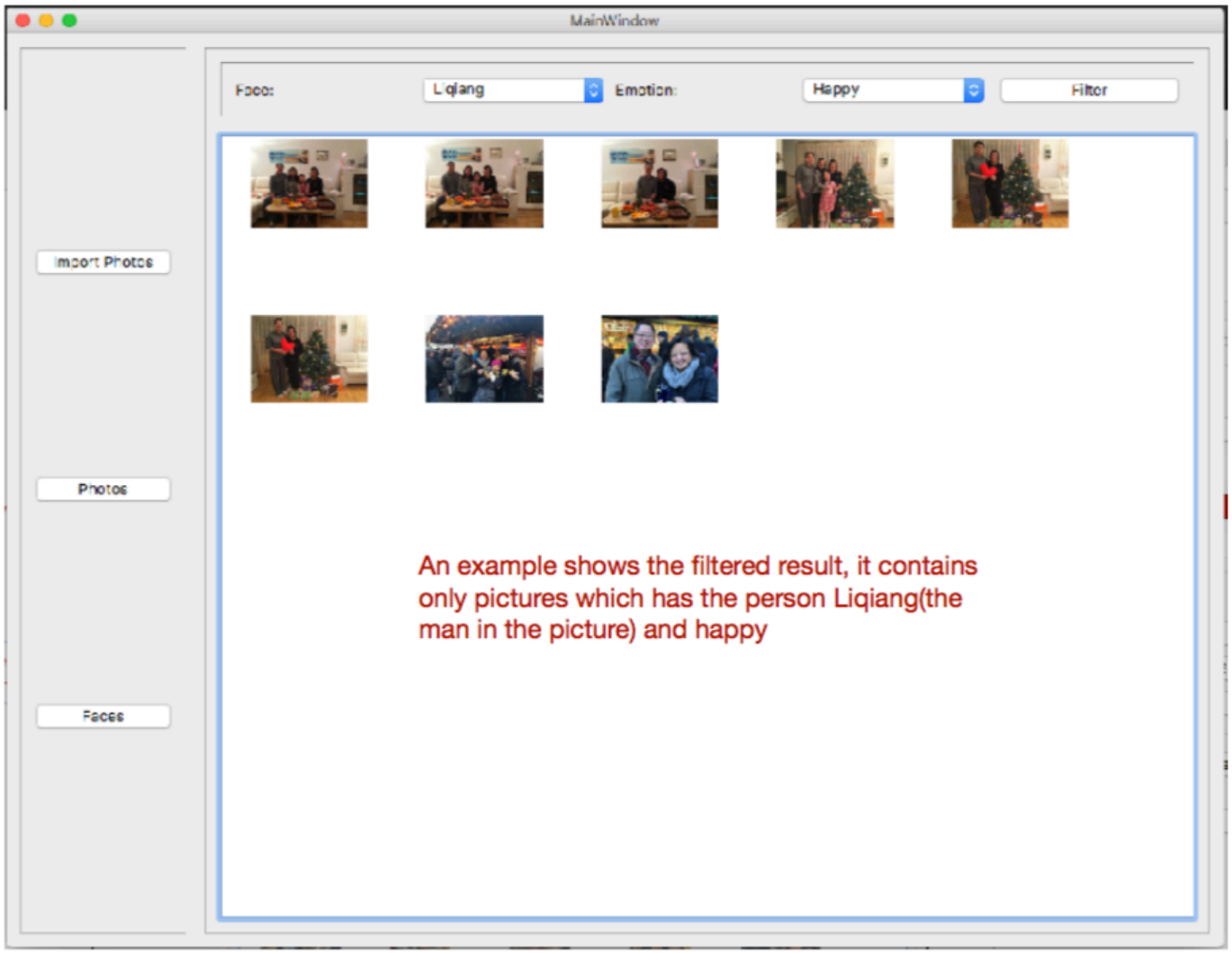
Mark all face in the picture

Prototype demo



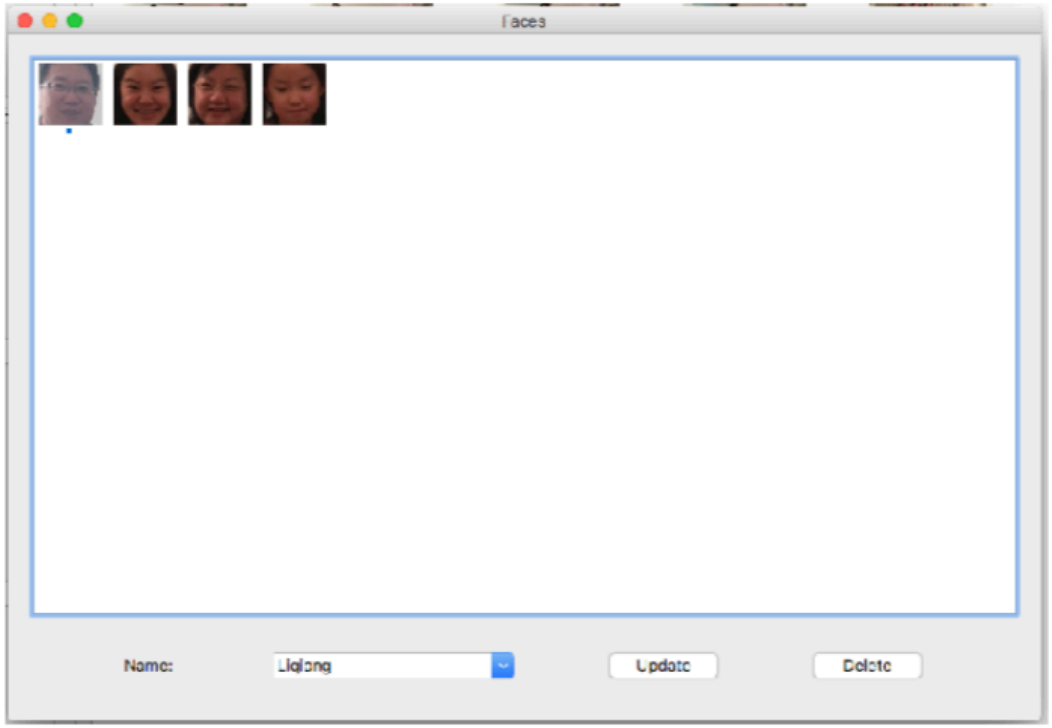
After Face button is click…
All face is marked, and a emoji shows the emotion predicted

Prototype demo



Prototype demo

Face browser



Here the user can see all the people in the library
User can update the name and remove a person from the list

Experiment result

Total faces count	Detected	False positive	Missed
163	159	12	4

Emotion	Manually classified count	Predicted count
Happy	128	109
Sad	12	39
Surprise	12	14

Limitations

- Face detection only works well with frontal face
- Face recognition requires users to manually input name a lot of times
- Face recognition does not work well with relevant family members (siblings)
- Emotion depends heavily on the training data set.

Possible improvements

- Combine Haar like classifier with frontal and side face
- Pre-process the face image with rotation correction
- Train the emotion classifier with a bigger and better data set