Klix Project

- 1- Dataset

- 2- Identification

- 3-Verification

- 4-Server

Dataset	Identity number	All images	Child Images
LFW	5749	13233	A few
AgeDB	568	16488	A few
LCW(our datset)	1921	28,943	14905

- Focuses on **Young** faces

Similar to **LFW** structure ⎨

- Four different age groups:

- 1- Young

- 2-Teenager

- 3-Minor

- 4-Adult

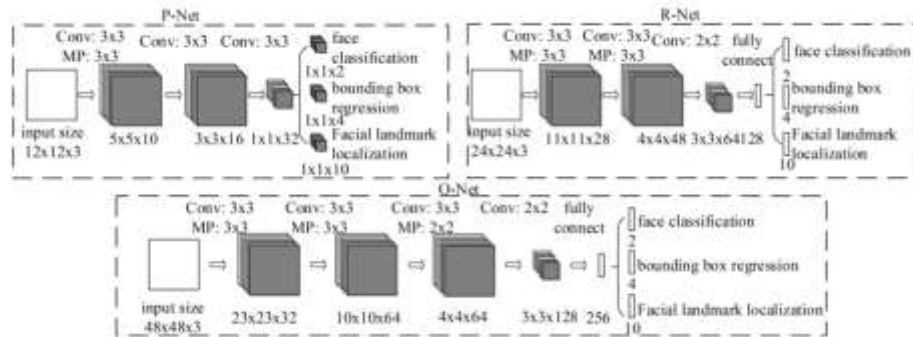- Mix of 3 dataset :

- IMDB-Wiki +AgeDB+ FGNet
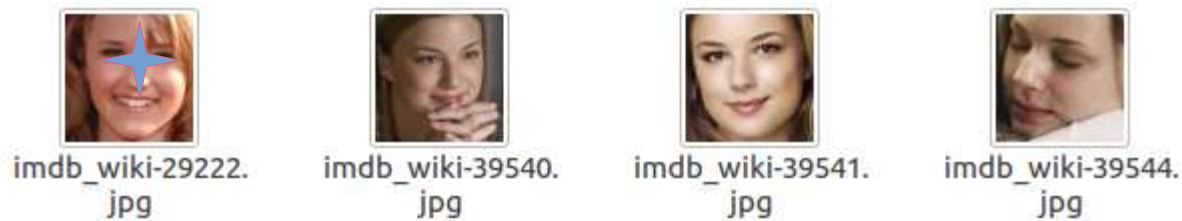
- Added some more images from the internet

6069 images added
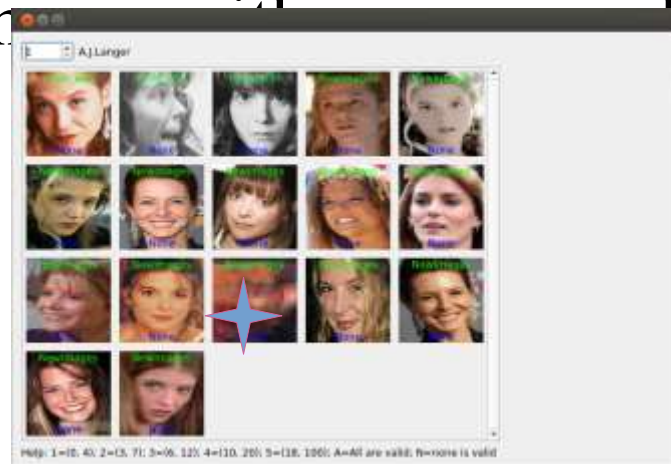
.Cutting the face with MTCNN

- Cleaning:

- 1- Delete the images which are not related to that identities

imdb_wiki-29222.jpg   imdb_wiki-39540.jpg   imdb_wiki-39541.jpg   imdb_wiki-39544.jpg

- 2-Remove the im   label

- Baby(0-3),Toddler (3-6), Child (7-12), Teen (13-20) , Adult (20 and older)

- The four datasets are:

- 1) LCW-Young,Children+Toddlers+Babies

- 2) LCW-Teen, Teenager

AbigailMavity1.jpeg
4.6 kB

AbigailMavity2.jpeg
5.0 kB

AbigailMavity3.jpeg
5.0 kB

AbigailMavity4.jpeg
4.6 kB

AbigailMavity5.jpeg
5.8 kB

AdamIrigoyen1.jpeg
6.4 kB

AdamIrigoyen2.jpeg
5.8 kB

AdamIrigoyen3.jpeg
6.0 kB

AdamIrigoyen4.jpeg
8.1 kB

AdamIrigoyen15.jpeg
8.0 kB

AdamLambert1.jpeg
5.9 kB

AdamLambert2.jpeg
7.1 kB

AdamLambert3.jpeg
6.3 kB

AdamLambert4.jpeg
5.1 kB

AlyssaMilano1.jpeg
5.7 kB

AlyssaMilano2.jpeg
6.7 kB
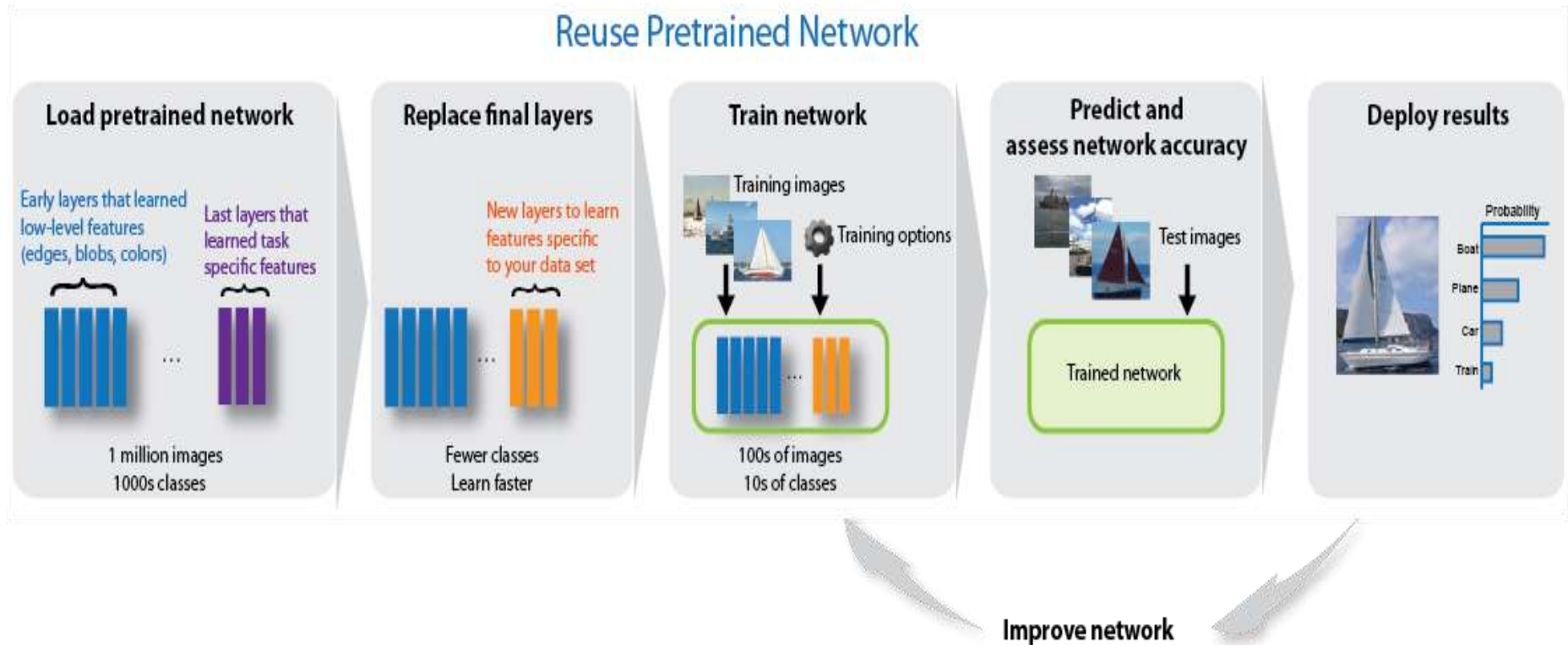

AlyssaMilano3.jpeg
5.7 kB

AlyssaMilano4.jpeg
6.3 kB

AlyssaMilano5.jpeg
5.5 kB

imdb_wiki-37105.jpg
5.8 kB

•Transfer learning

- from keras_vggface.vggface import VGGFace

- vggface = VGGFace(model='vgg16')

- vggface = VGGFace(model='resnet50')

- vggface = VGGFace(model='senet50')

- VGGFace consists of 2.6M images of 2,622 identities

optimizer	Epoch	Batch-size	pooling	model	Acc	Neuron number	Lr
Adam	250	15	avg	VGG*	83	200,134	10^{-5}

VGG*:VGGFace model + 2 Dense layers

•VGGface + 2 Dense layers(model1)

```
Layer (type)                    Output Shape              Param #
=================================================================
vggface_vgg16 (Model)           (None, 512)               14714688
_____
dense (Dense)                   (None, 20)                10260
_____
dense_1 (Dense)                 (None, 134)               2814
=================================================================
Total params: 14,727,762
Trainable params: 13,074
Non-trainable params: 14,714,688
_____
Total number of images for "training":
```

.VGGface + 3 Dense layers(model2)

```
Model: "sequential"
_____
Layer (type)                  Output Shape            Param #
===============================================================
vggface_vgg16 (Model)         (None, 512)             14714688
_____
dense (Dense)                 (None, 100)             51300
_____
dense_1 (Dense)               (None, 50)              5050
_____
dense_2 (Dense)               (None, 134)             6834
===============================================================
Total params: 14,777,872
Trainable params: 63,184
Non-trainable params: 14,714,688
_____

Total number of images for "training":
Found 3418 images belonging to 134 classes.
Total number of images for "testing":
Found 550 images belonging to 134 classes.
Found 375 images belonging to 134 classes.
WARNING:tensorflow:`period` argument is deprecated. Please use `save_freq` to specif
WARNING:tensorflow:From vgg16changed4.py:164: Model.fit_generator (from tensorflow.c
```
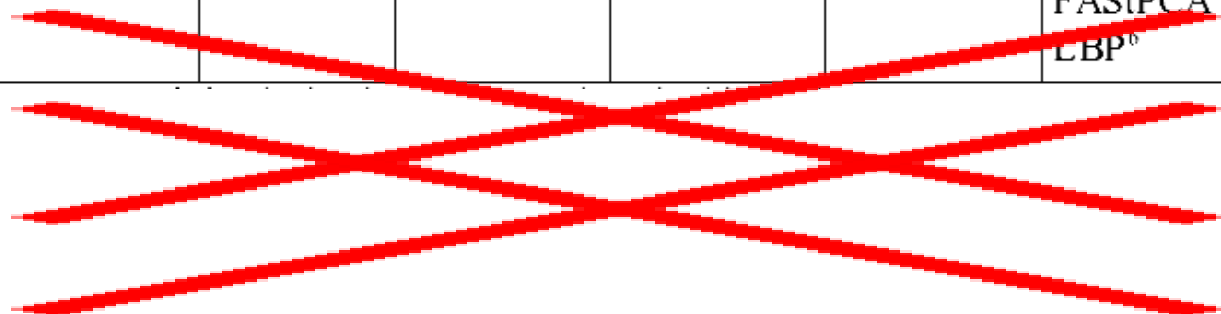
• VGGface + dropout+ flatten+ dense+ dropout(20)+ dense(100) + dense(134)(model3)

Layer (type)	Output Shape	Param #
vggface_vgg16 (Model)	(None, 512)	14714688
dropout (Dropout)	(None, 512)	0
flatten (Flatten)	(None, 512)	0
dense (Dense)	(None, 20)	10260
dropout_1 (Dropout)	(None, 20)	0
dense_1 (Dense)	(None, 100)	2100
dense_2 (Dense)	(None, 134)	13534

Total params: 14,740,582
Trainable params: 25,894
Non-trainable params: 14,714,688

Total number of images for "training":

optimizer	Epoch	Batch-size	pooling	model	Acc	Neuron number	Lr
Adam	250	15	avg	3	15	20,100,134	10^{-5}
Adam	250	15	avg	2	47	20,100,134	10^{-5}
Adam	250	15	avg	1	**83**	200,134	10^{-5}

Dataset	Number of subjects	Number of images per subject	All images	Number of child images	Method	ACC	Precision	Recall
LCW-Teen	134	Unbalance >9 images	4333	4333	VGG*(our method)	83	87	81
LFW(subset)	161	Unbalance >9 images	4333	4333		92	91	89
LFW(subset)	30	20	600	0	TLSRWF[1]	76	-	-
					TLSR[2]	72	-	-
					CRC[3]	68	-	-
					PCA+BP[4]	45	-	-
					FAStPCA[5]	48	-	-
					LBP[6]	42	-	-

Thanks

Question?