Challenge #2: Face Recognition

2018 Spring DLCV Final Project

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Tasks

Task 1: Beat TA's Baseline

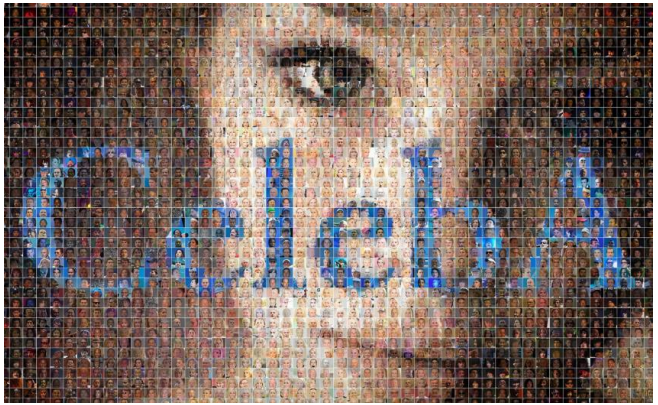
- Train a classifier to beat the simple/strong baseline
- You will be given a dataset of interest (with predetermined data split)
- You are NOT allowed to apply any external dataset or techniques like transfer learning

Task 2: Squeeze Your Model

- Design a model (e.g., those with fewer parameters, simpler designs, compact or simplified versions) which would achieve comparable performances but save computation or storage costs.

Dataset: Trimmed CelebA

- CelebA Dataset
  - Collected by Multimedia Laboratory, The Chinese University of Hong Kong
  - RGB aligned face image of size 178 x 218 x 3 pixels



Dataset: Trimmed CelebA

- Available at ...
  - Kaggle ：https://www.kaggle.com/t/e731bc01fc6440e6bcc76fdcb57a1074
  - Google Drive ：https://goo.gl/ugoN9J
- Dataset Format
  - ├ train/
  - ├ val/
  - ├ test/
  - ├ train_id.txt
  - └ val_id.txt
- Dataset Details
  - Training / Validation / Testing: 56,475 / 7,211/ 7,152 images each
  - 2360 different identity labels

Experimental Settings

- **Part 1: Baseline Model**
  - Use the training set (splitted by TAs)
  - Any **external datasets** and **pretrained models** are **not** allowed

- **Part 2: Compact Model**
  - Design a compact model without sacrificing recognition performance remarkably.
  - Show your method and model in your presentation.
  - You should perform experiments to evaluate your methods and present the results in your presentation.

Kaggle Policy

- Kaggle Link：[link]
- Team Name: leaderStudentID_TeamName (e.g. r05901001_乂煞氣小耕乂)
- Maximum Daily Submission: 10
- Sample Submission:
  - Please refer to the SampleSubmission.csv in kaggle contest page

Submission Format

- Please refer to SampleSubmission.csv
- Note that the first line should be identical to the following example

```
id,ans
1,0
2,0
3,1
4,2
etc.
```

Evaluation

- Accuracy
- Example:

  m correct answers out of **N** images:

  accuracy = **m / N**

Evaluation Methods

- Final 35% + Bonus 5%
  - **Code / Kaggle** 10%: Kaggle is for reference, final accuracy will be evaluated by TAs
    - TA baseline (Weak Public: 5% / Strong Public: 5% / Private: 0%, No private!)
  - **Method & Presentation** 25% + Bonus 5%
    - Novelty + compactness + completeness of experiments (e.g., comparisons to baseline and recent models, ablation studies, etc.) 15% + **Bonus 5%**
    - Presentation (Oral + Poster) 10%
  - For both tasks, you need to upload your code to github and provide **readme** file, so that TAs will be able to **reproduce** your results!
  - If TAs cannot reproduce your results, 0 points will be given.

Intra-group evaluation will be evaluated as well!

Github Upload Policy

- **DLCV2018SPRING/final** on your teamleader's GitHub repository should include the following files:
  - README.md (how to reproduce your kaggle and experiment result)
  - Your Python files (train.py and others)
  - Your model files (can be loaded by your Python file)
  - Other script (including model downloading scipts and others)
- **Do NOT upload the dataset!**
- If TAs cannot reproduce your results due to format error, etc., no credits will be given on the corresponding task!

Allowed Packages (Last Modified: 6/13 13:00 p.m.)

- Python 3.6
- Tensorflow 1.6
- Pytorch 0.4.0
- Keras 2.1.5
- numpy 1.14.2
- pandas 0.22.0
- scikit-image 0.14.0
- Pillow 5.1
- scipy 1.1.0
- opencv-python 3.4.1.15
- Ask for TAs permission if your team need to import package that hadn't been listed on this slide; the allowed package will be updated on both FB group and challenge slide.

Additional References

1. **SQUEEZENET: ALEXNET-LEVEL ACCURACY WITH 50X FEWER PARAMETERS AND <0.5MB MODEL SIZE** (Forrest N. Iandola et al., ICLR'17)
   - https://arxiv.org/pdf/1602.07360.pdf
2. **MobileNets: Efficient Convolutional Neural Networks for Mobile Vision Applications** (Andrew G. Howard et al., arXiv17)
   - https://arxiv.org/pdf/1704.04861.pdf
3. **XNOR-Net: ImageNet Classification Using Binary Convolutional Neural Networks**
   - https://arxiv.org/pdf/1603.05279.pdf
4. Awesome Knowledge Distillation

TAs

- 郭子生
- 楊正彥
- 曾耕森
- 陳柏屺
- 彭懷樸
- 楊耀程
- 廖宜倫
- 林彥伯
- If you have any questions, please leave a comment in the Facebook group or send an email to TA’s email account.