**關於SimSwap**

Reference: <https://github.com/neuralchen/SimSwap>

💬從[DeepFaceLab](https://github.com/iperov/DeepFaceLab)官網看到一個相關的項目：  
【[SimSwap](https://github.com/neuralchen/SimSwap)】：Swapping face using ONE single photo 一張圖免訓練換臉。  


感覺很神奇，百度瞭解到是上海交通大學和騰訊聯合研發的一個框架。SimSwap的意思就是Simple Swap，簡易的換臉。

項目依賴：

* python3.6+
* pytorch1.5+
* torchvision0.9+：進行臉部解析和圖像後期處理
* torchaudio==0.8.0
* cudatoolkit=10.2
* opencv
* pillow
* numpy
* imageio
* moviepy
* insightface0.2+：做臉部識別和對其，進行圖像預處理。

# SimSwap-Colab

https://github.com/woctezuma/SimSwap-colab/#simswap-colab

The goal of this repository is to provide a Colab notebook to apply SimSwap to images.

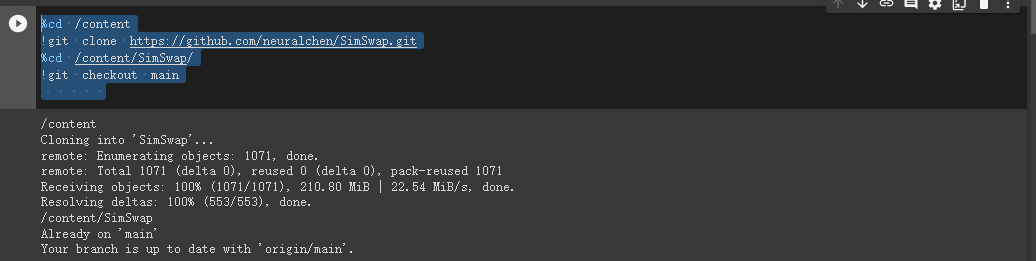
## Prepare code

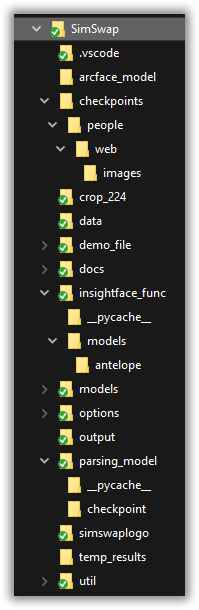
%cd /content

!git clone https://github.com/neuralchen/SimSwap.git

%cd /content/SimSwap/

!git checkout main



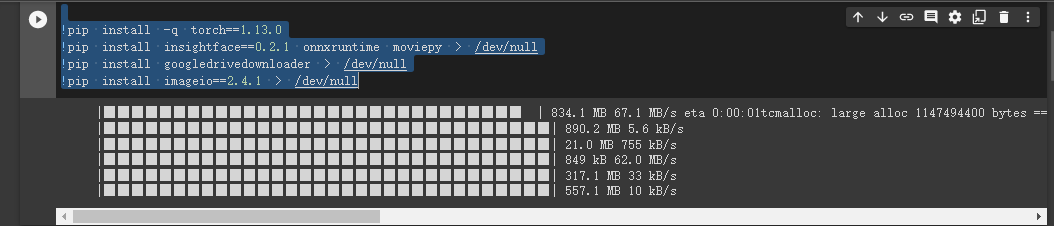
克隆下來的專案目錄，最終目錄結構大概如下：  


!pip install -q torch==1.13.0

!pip install insightface==0.2.1 onnxruntime moviepy > /dev/null

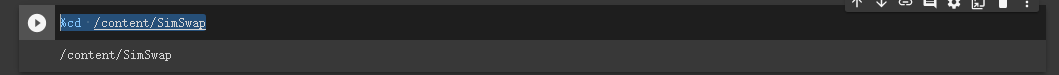
!pip install googledrivedownloader > /dev/null

!pip install imageio==2.4.1 > /dev/null



## Prepare models

%cd /content/SimSwap



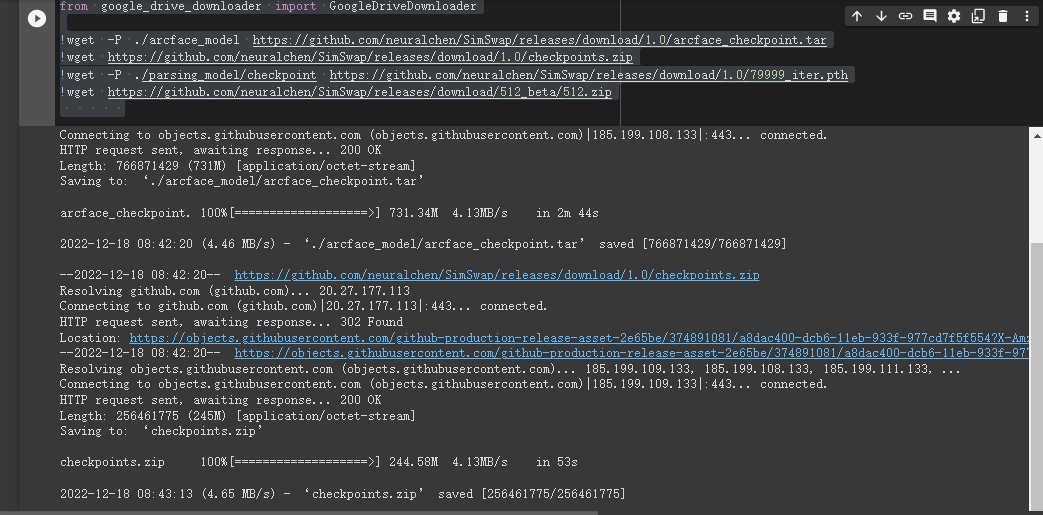
from google\_drive\_downloader import GoogleDriveDownloader

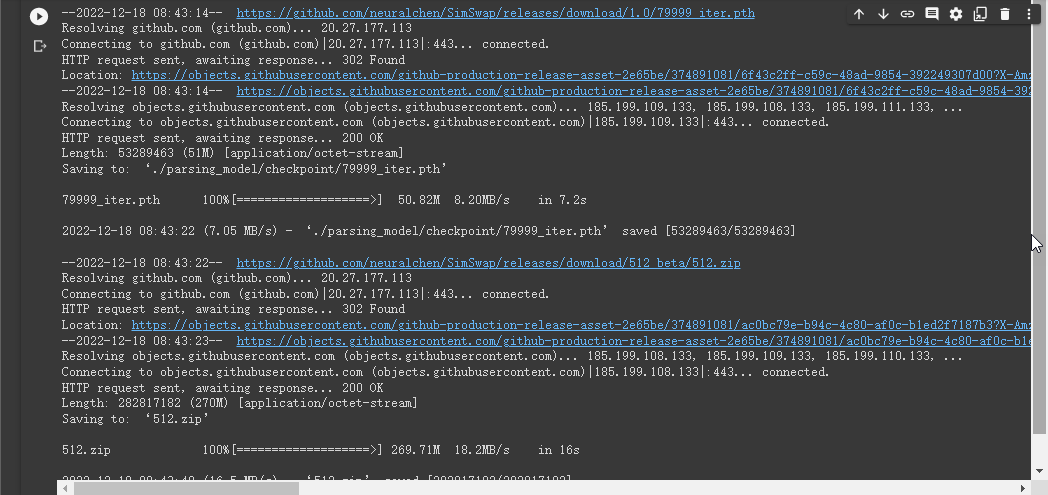
!wget -P ./arcface\_model https://github.com/neuralchen/SimSwap/releases/download/1.0/arcface\_checkpoint.tar

!wget https://github.com/neuralchen/SimSwap/releases/download/1.0/checkpoints.zip

!wget -P ./parsing\_model/checkpoint https://github.com/neuralchen/SimSwap/releases/download/1.0/79999\_iter.pth

!wget https://github.com/neuralchen/SimSwap/releases/download/512\_beta/512.zip

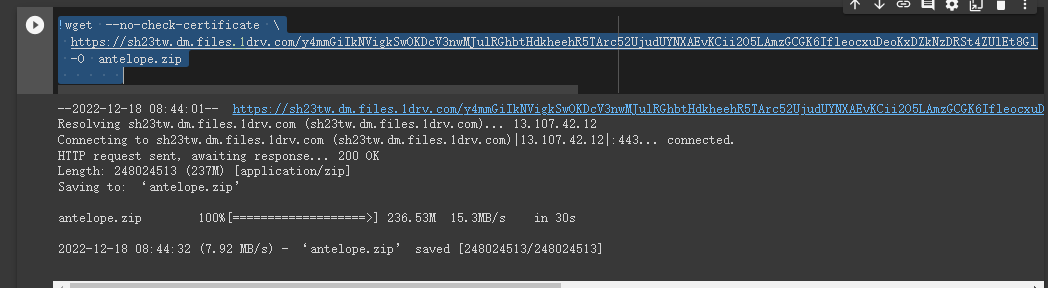




!wget --no-check-certificate \

 https://sh23tw.dm.files.1drv.com/y4mmGiIkNVigkSwOKDcV3nwMJulRGhbtHdkheehR5TArc52UjudUYNXAEvKCii2O5LAmzGCGK6IfleocxuDeoKxDZkNzDRSt4ZUlEt8GlSOpCXAFEkBwaZimtWGDRbpIGpb\_pz9Nq5jATBQpezBS6G\_UtspWTkgrXHHxhviV2nWy8APPx134zOZrUIbkSF6xnsqzs3uZ\_SEX\_m9Rey0ykpx9w \

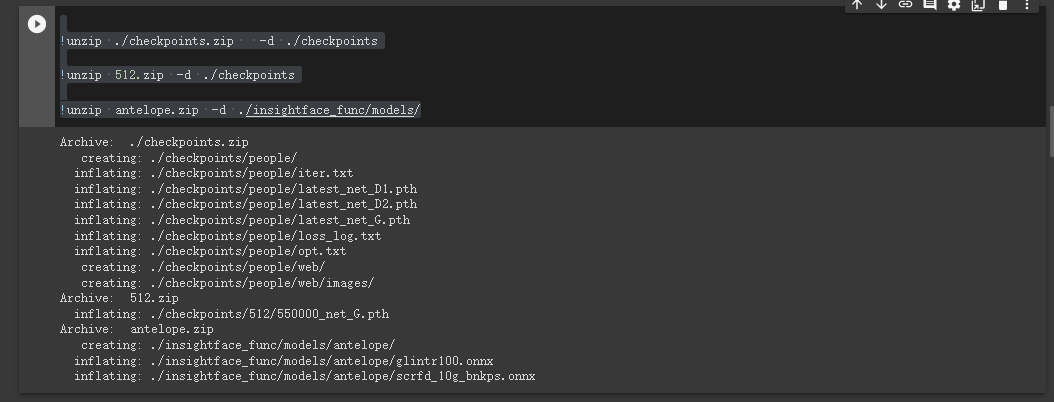
 -O antelope.zip



!unzip ./checkpoints.zip  -d ./checkpoints

!unzip 512.zip -d ./checkpoints

!unzip antelope.zip -d ./insightface\_func/models/

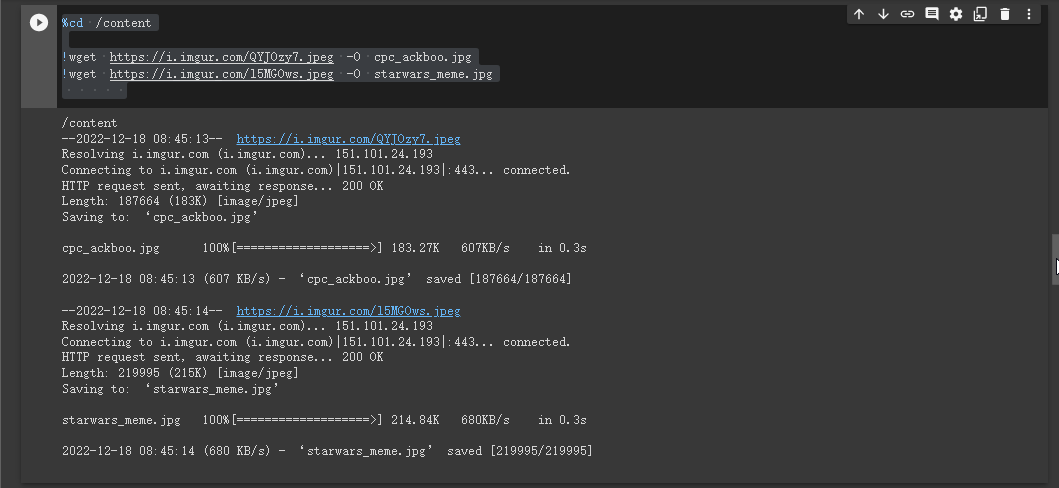


## Prepare data

%cd /content

!wget https://i.imgur.com/QYJOzy7.jpeg -O cpc\_ackboo.jpg

!wget https://i.imgur.com/l5MGOws.jpeg -O starwars\_meme.jpg



input\_fname = '/content/cpc\_ackboo.jpg'

output\_fname = '/content/starwars\_meme.jpg'



### Convert to JPG

Images should not be too large, hence the (arbitrary) limitation of 1024 length.

def get\_new\_size(img\_size,

                 max\_allowed\_length = 1024):

  if any(max\_allowed\_length < sz for sz in img\_size):

    long\_length = max(img\_size)

    ratio = max\_allowed\_length / long\_length

  else:

    ratio = 1.0

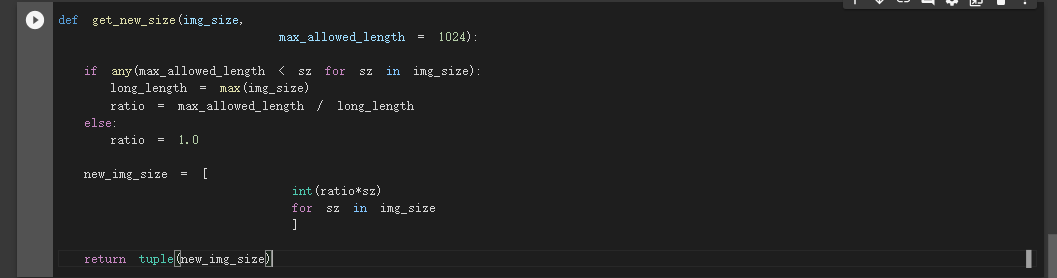
  new\_img\_size = [

                  int(ratio\*sz)

                  for sz in img\_size

                  ]

  return tuple(new\_img\_size)



from PIL import Image

allow\_resize = False

for fname in [input\_fname, output\_fname]:

  jpg\_fname = fname.replace('.png', '.jpg')

  try:

    img = Image.open(fname)

  except FileNotFoundError:

    continue

  new\_size = get\_new\_size(img.size, max\_allowed\_length = 1024)

  if allow\_resize:

    print(f'Resizing from {img.size} to {new\_size}')

    img.resize(new\_size)

  print(f'Saving to {jpg\_fname}')

  img.convert('RGB').save(jpg\_fname)

jpg\_input = input\_fname.replace('.png', '.jpg')

jpg\_output = output\_fname.replace('.png', '.jpg')



## Run

### Single

%cd /content/SimSwap

%mkdir -p /content/output/single/

!python test\_wholeimage\_swapsingle.py \

 --no\_simswaplogo \

 --use\_mask \

 --crop\_size 512 \

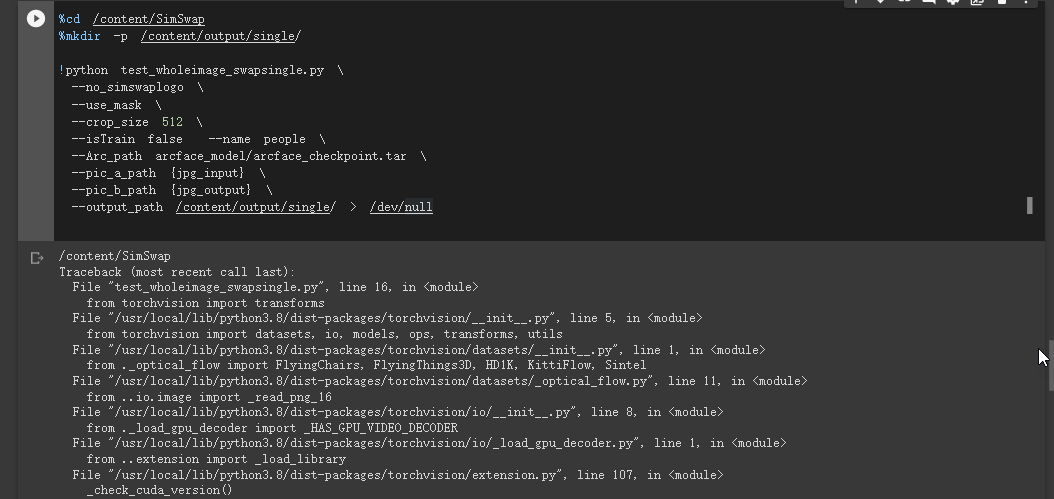
 --isTrain false  --name people \

 --Arc\_path arcface\_model/arcface\_checkpoint.tar \

 --pic\_a\_path {jpg\_input} \

 --pic\_b\_path {jpg\_output} \

 --output\_path /content/output/single/ > /dev/null



上面的命令，將萊昂納多的臉，換到了發哥的頭上。  
是官方的例子，當然自己執行也一樣效果。



### Multi

%cd /content/SimSwap

%mkdir -p /content/output/multi/

!python test\_wholeimage\_swapmulti.py \

 --no\_simswaplogo \

 --use\_mask \

 --crop\_size 512 \

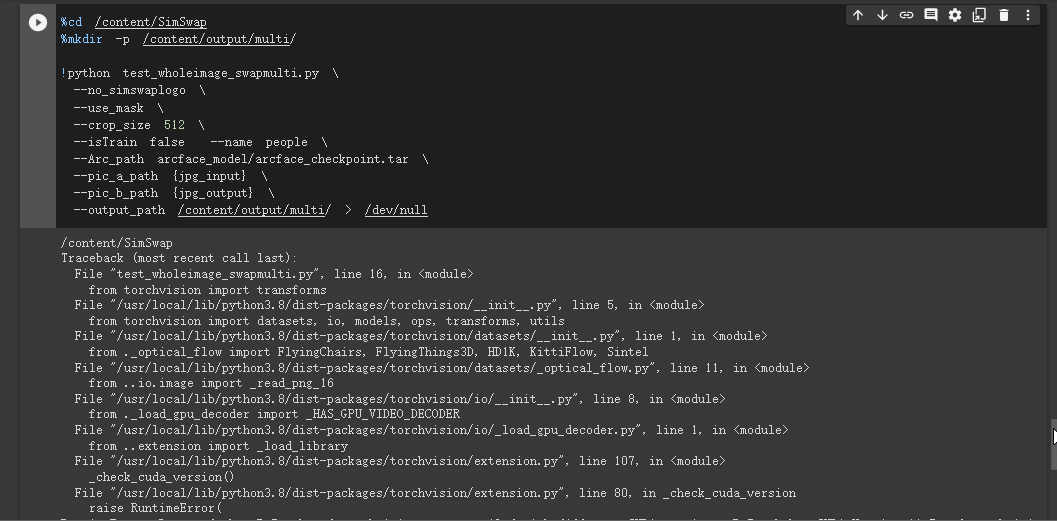
 --isTrain false  --name people \

 --Arc\_path arcface\_model/arcface\_checkpoint.tar \

 --pic\_a\_path {jpg\_input} \

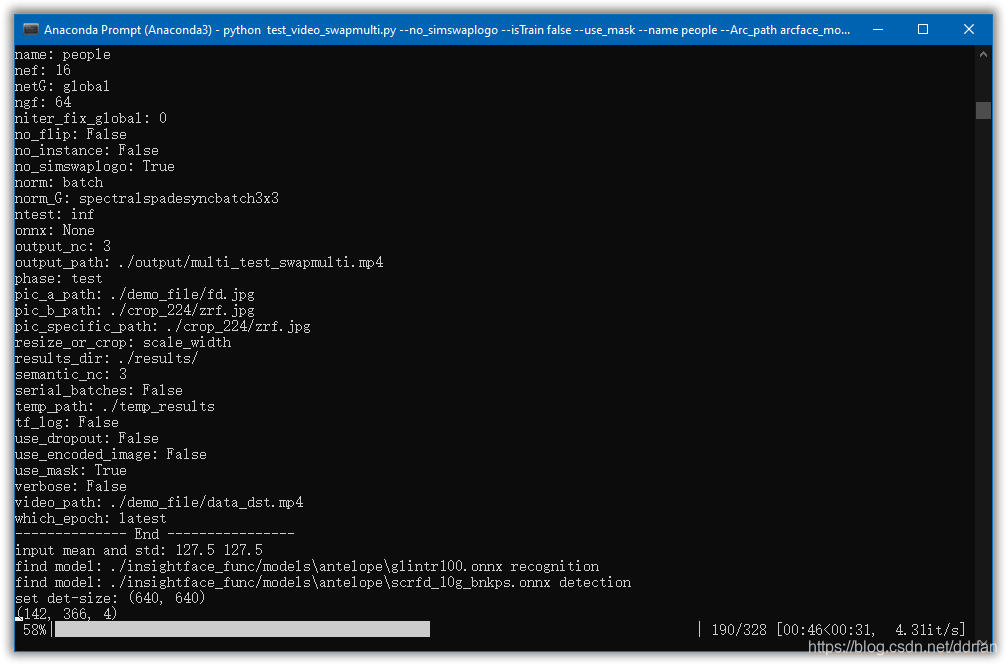
 --pic\_b\_path {jpg\_output} \

 --output\_path /content/output/multi/ > /dev/null



換視頻中所有的臉（非常詭異的效果）

(simswap) C:\SimSwap>python test\_video\_swapmulti.py --isTrain false --use\_mask --name people --Arc\_path arcface\_model/arcface\_checkpoint.tar --pic\_a\_path ./demo\_file/Iron\_man.jpg --video\_path ./demo\_file/multi\_people\_1080p.mp4 --output\_path ./output/multi\_test\_swapmulti.mp4 --temp\_path ./temp\_results

  
等進度條走完，基本上就完成了。

還可以多種方式，指定臉換臉，去掉logo等，請看[原文](https://github.com/neuralchen/SimSwap/blob/main/docs/guidance/usage.md)吧。  
大概效果和官方的介紹是一樣的。  
