

IMAGE CLASSIFICATION ENGINE

For ovals



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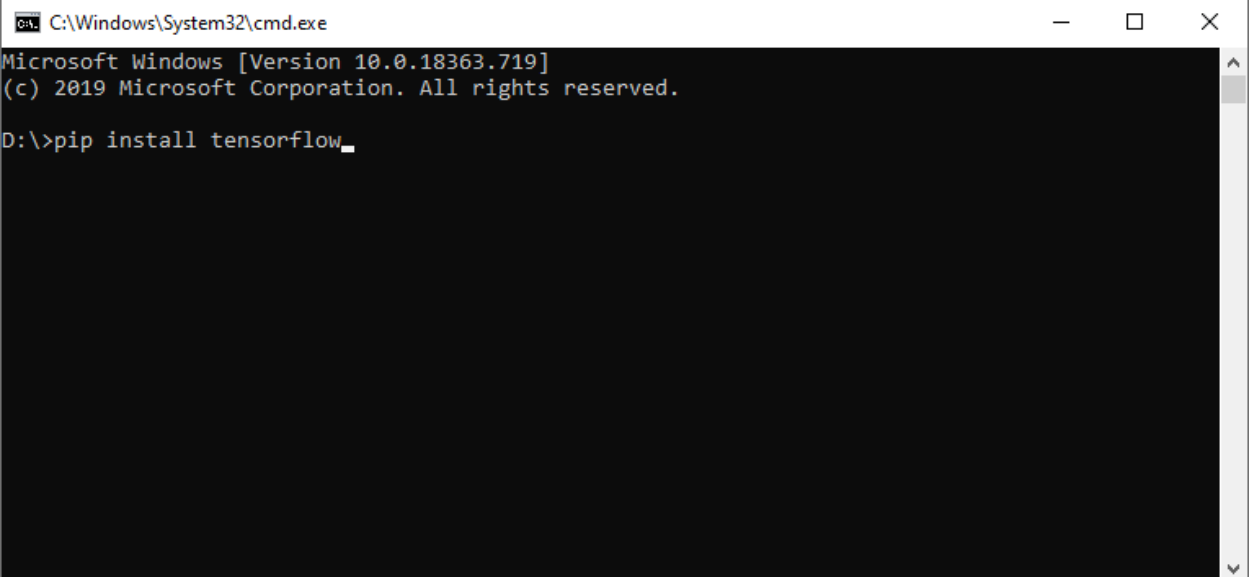
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DEPENDENCY

- Python 3.8.5
- Tensorflow 2.4.1
- Keras 2.4.3Our Proposal

SETUP ENVIRONMENT

- Install anaconda
<https://docs.anaconda.com/anaconda/install/>
- Tensorflow 2.4.1



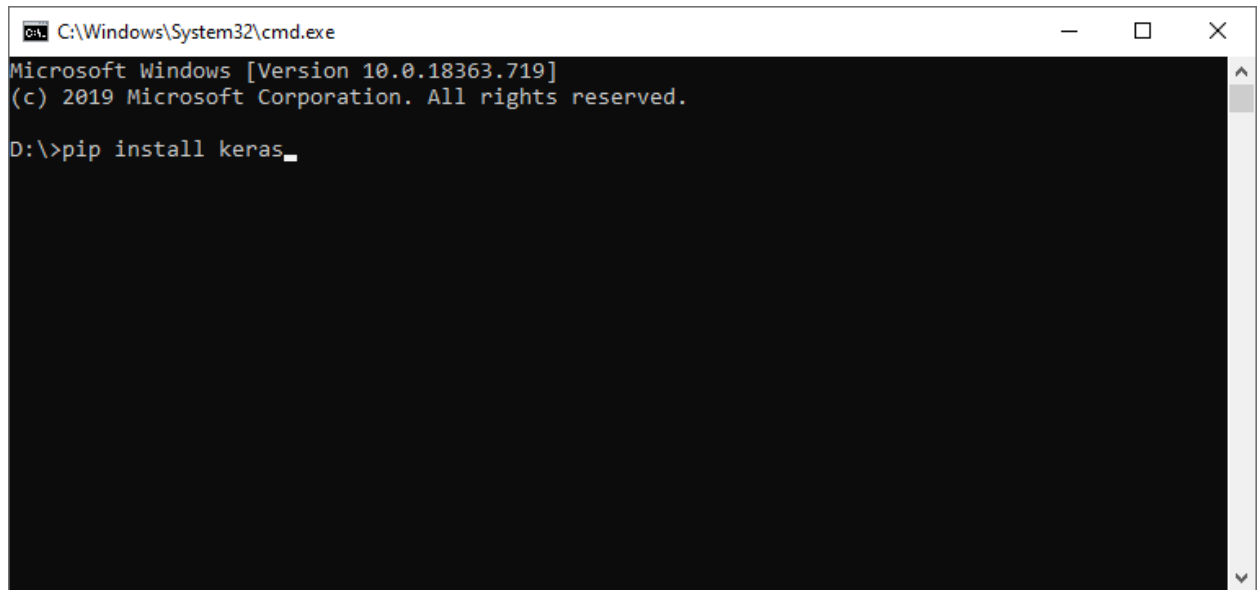
```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18363.719]
(c) 2019 Microsoft Corporation. All rights reserved.

D:\>pip install tensorflow_
```

For more detail, please visit this.

<https://www.tensorflow.org/install/pip>

- Keras 2.4.3

A screenshot of a Windows Command Prompt window. The title bar shows 'C:\Windows\System32\cmd.exe'. The window content displays the following text: 'Microsoft Windows [Version 10.0.18363.719]', '(c) 2019 Microsoft Corporation. All rights reserved.', and 'D:\>pip install keras_'. The cursor is positioned at the end of the command line.

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18363.719]
(c) 2019 Microsoft Corporation. All rights reserved.
D:\>pip install keras_
```

<https://www.liquidweb.com/kb/how-to-install-keras/>

ENGINE CONFIGURATION

- Oval extraction based on image processing
run.py
- Classification of blank ovals and filled ones based on Keras CNN Model
run.py
- Classification of oval and non-oval based on Keras CNN Model
classification_oval_none.py
Model: resources/ovalnone_model_bak.h5
- Classification of oval of human and one of machine based on Keras CNN Model
classification_hu_ma.py
Model: resources/MachineHuman_model_bak.h5

IMAGE RESOURCE

Two kinds of images can be used in this engine.

- Isolated images
- Quad images



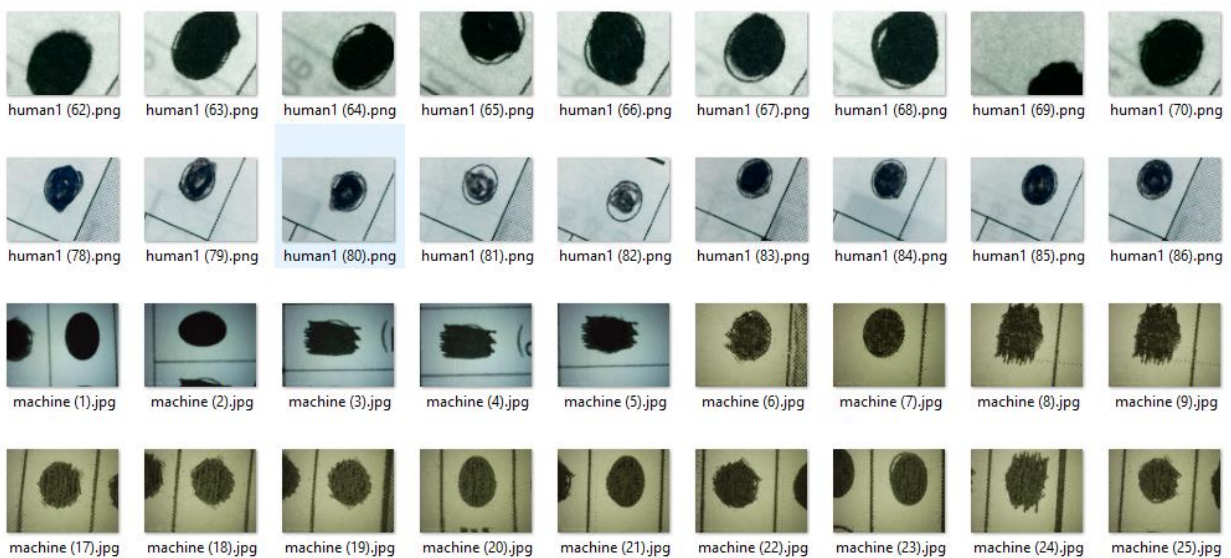
Use the only a kind of images

If there are two kinds of images in the image folder, exact result can't be got.

STEPS

1. Copy the images that should be classified into the image folder

> This PC > Local Disk (D:) > Classification > image



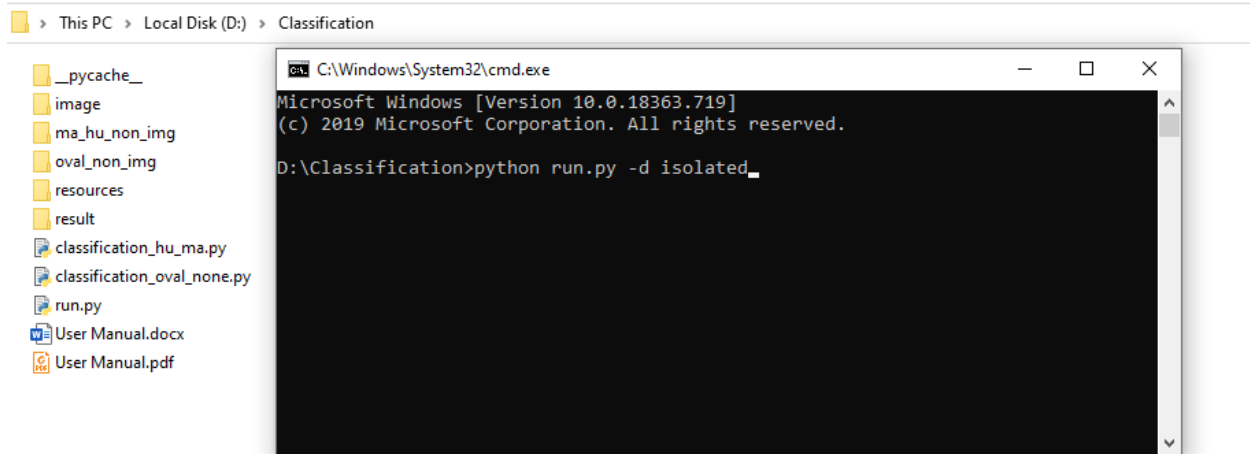
2. Run the run.py file

Navigate to the Classification folder.

D:\Classification				
Name	Date modified	Type	Size	
__pycache__	5/21/2021 5:46 AM	File folder		
image	5/21/2021 5:46 AM	File folder		
ma_hu_non_img	5/20/2021 8:49 PM	File folder		
oval_non_img	5/21/2021 5:46 AM	File folder		
resources	5/21/2021 5:46 AM	File folder		
result	5/21/2021 5:46 AM	File folder		
classification_hu_ma.py	5/20/2021 8:39 PM	Python File	2 KB	
classification_oval_none.py	5/20/2021 8:40 PM	Python File	3 KB	
run.py	5/20/2021 8:40 PM	Python File	6 KB	

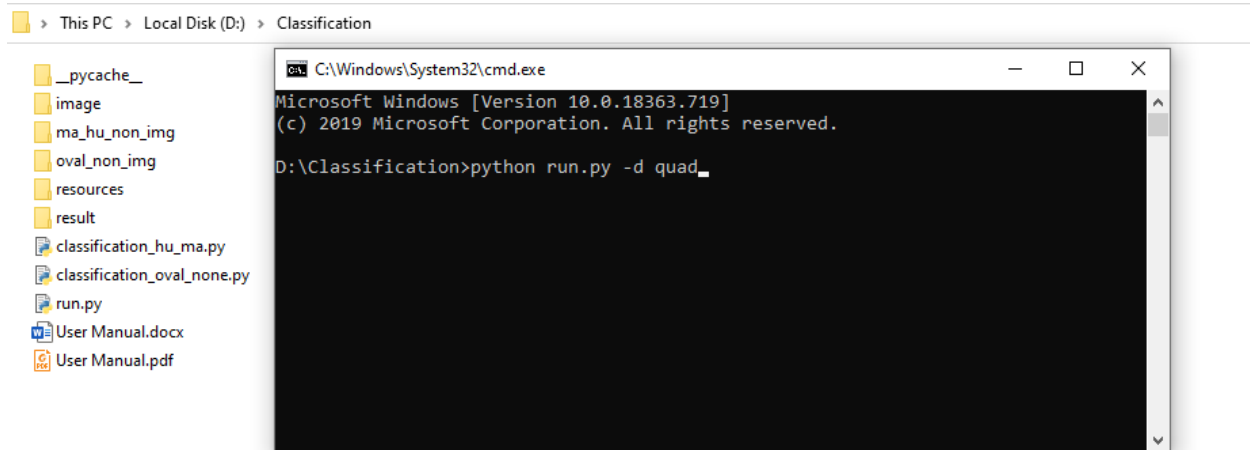
cmd				
CMD				
Search for "cmd"				
__pycache__	5/21/2021 5:46 AM	File folder		
image	5/21/2021 5:46 AM	File folder		
ma_hu_non_img	5/20/2021 8:49 PM	File folder		
oval_non_img	5/21/2021 5:46 AM	File folder		
resources	5/21/2021 5:46 AM	File folder		
result	5/21/2021 5:46 AM	File folder		
classification_hu_ma.py	5/20/2021 8:39 PM	Python File	2 KB	
classification_oval_none.py	5/20/2021 8:40 PM	Python File	3 KB	
run.py	5/20/2021 8:40 PM	Python File	6 KB	

- Run the engine with isolated images



 Make sure whether the images in the image folder are isolated ones or not.

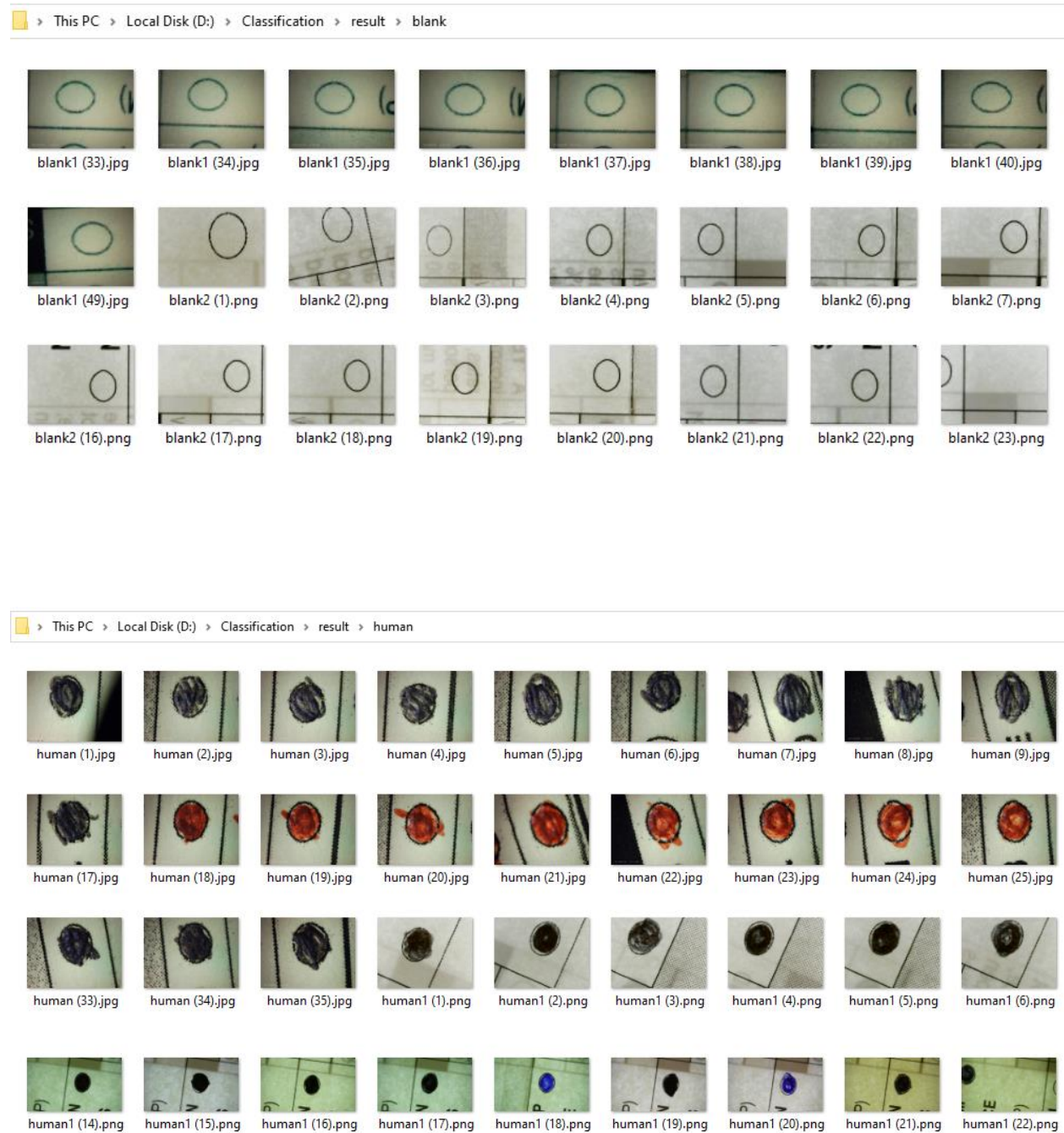
- Run the engine with quad images



 Make sure whether the images in the image folder are quad ones or not.

RESULT

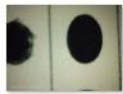
After running the run.py file, the result will be stored in the result folder.



> This PC > Local Disk (D:) > Classification > result > machine



human1 (40).png



machine (1).jpg



machine (2).jpg



machine (3).jpg



machine (4).jpg



machine (5).jpg



machine (6).jpg



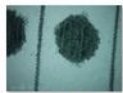
machine (7).jpg



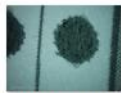
machine (8).jpg



machine (17).jpg



machine (18).jpg



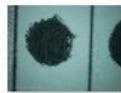
machine (19).jpg



machine (20).jpg



machine (21).jpg



machine (22).jpg



machine (23).jpg



machine (24).jpg



machine (25).jpg



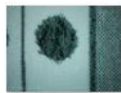
machine (34).jpg



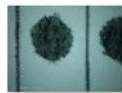
machine (35).jpg



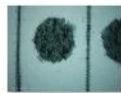
machine (36).jpg



machine (37).jpg



machine (38).jpg



machine (39).jpg



machine (40).jpg



machine (41).jpg



machine (42).jpg



machine (51).jpg



machine (52).jpg



machine (53).jpg



machine (54).jpg



machine (55).jpg



machine (56).jpg



machine (57).jpg



machine (58).jpg



machine (59).jpg



If you have got a strange result, make sure whether the images in the image folder are isolated ones or quad ones.