# DeepLabCut

Help for each function: deeplabcut.[function]?

1. Open Command Prompt, run as administrator
2. activate DLC-GPU
3. pip install --upgrade deeplabcut
4. ipython
5. import deeplabcut
6. config\_path=deeplabcut.create\_new\_project('Pupil', 'Sylvia',[r'J:\EyeData\SS041\2015-08-11\1\2015-08-11\_1\_SS041\_eye.mj2'], working\_directory=r'C:\STORAGE\OneDrive - University College London\Lab\DLC Pupil')  
   OR  
   config\_path=r'C:\STORAGE\OneDrive - University College London\Lab\DLC Pupil\Pupil-Sylvia-2020-04-27\config.yaml'
7. deeplabcut.add\_new\_videos(config\_path,[r'path\_video1',r'path\_video2',…])
8. Configure config.yaml
9. deeplabcut.extract\_frames(config\_path, 'automatic', 'kmeans',crop=False,userfeedback=False)
10. deeplabcut.label\_frames(config\_path) 🡪 GUI opens
11. [deeplabcut.check\_labels(config\_path, scale=2)] (didn’t try scale parameter; scales dimension of images)
12. deeplabcut.create\_training\_dataset(config\_path)
13. Configure pose\_cfg.yaml in dlc-models\iteration-0\[ProjectName]\train if necessary (e.g. maximum number of steps, save parameters after n iterations)
14. deeplabcut.train\_network(config\_path)
15. deeplabcut.evaluate\_network(config\_path,plotting=True)

Now for each video:

1. deeplabcut.analyze\_videos(config\_path, [r'J:\EyeData\SS041\2015-08-11\1\2015-08-11\_1\_SS041\_eye.mj2'],save\_as\_csv=True)
2. deeplabcut.filterpredictions(config\_path, [r'J:\EyeData\SS041\2015-08-11\1\2015-08-11\_1\_SS041\_eye.mj2'])
3. deeplabcut.plot\_trajectories(config\_path, [r'J:\EyeData\SS041\2015-08-11\1\2015-08-11\_1\_SS041\_eye.mj2'], showfigures=True)  
   and/or  
   deeplabcut.plot\_trajectories(config\_path, [r'J:\EyeData\SS041\2015-08-11\1\2015-08-11\_1\_SS041\_eye.mj2'], showfigures=True, filtered=True)
4. deeplabcut.create\_labeled\_video(config\_path, [r'J:\EyeData\SS041\2015-08-11\1\2015-08-11\_1\_SS041\_eye.mj2'], save\_frames=True, filtered=True)
5. deeplabcut.extract\_outlier\_frames(config\_path, [r'J:\EyeData\SS041\2015-08-11\1\2015-08-11\_1\_SS041\_eye.mj2'], outlieralgorithm='manual')  
   or  
   deeplabcut.extract\_outlier\_frames(config\_path, [r'J:\EyeData\SS041\2015-08-11\1\2015-08-11\_1\_SS041\_eye.mj2'], outlieralgorithm='uncertain')

For all videos together:

1. deeplabcut.refine\_labels(config\_path)
2. deeplabcut.merge\_datasets(config\_path)
3. repeat step 11-19

videos=[r'J:\EyeData\SS041\2015-08-11\1\2015-08-11\_1\_SS041\_eye.mj2', r'J:\EyeData\SS047\2015-11-10\4\2015-11-10\_4\_SS047\_eye.mj2', r'J:\EyeData\SS047\2015-11-10\5\2015-11-10\_5\_SS047\_eye.mj2', r'J:\EyeData\SS047\2015-11-10\6\2015-11-10\_6\_SS047\_eye.mj2', r'J:\EyeData\SS047\2015-11-11\2\2015-11-11\_2\_SS047\_eye.mj2', r'J:\EyeData\SS047\2015-11-12\1\2015-11-12\_1\_SS047\_eye.mj2', r'J:\EyeData\SS047\2015-11-17\1\2015-11-17\_1\_SS047\_eye.mj2', r'J:\EyeData\SS047\2015-11-18\1\2015-11-18\_1\_SS047\_eye.mj2', r'J:\EyeData\SS047\2015-11-18\2\2015-11-18\_2\_SS047\_eye.mj2', r'J:\EyeData\SS047\2015-11-24\3\2015-11-24\_3\_SS047\_eye.mj2', r'J:\EyeData\SS048\2015-08-20\1\2015-08-20\_1\_SS048\_eye.mj2', r'J:\EyeData\SS048\2015-08-27\1\2015-08-27\_1\_SS048\_eye.mj2', r'J:\EyeData\SS048\2015-09-03\1\2015-09-03\_1\_SS048\_eye.mj2', r'J:\EyeData\SS048\2015-09-16\1\2015-09-16\_1\_SS048\_eye.mj2', r'J:\EyeData\SS048\2015-09-26\1\2015-09-26\_1\_SS048\_eye.mj2', r'J:\EyeData\SS048\2015-09-26\2\2015-09-26\_2\_SS048\_eye.mj2', r'J:\EyeData\SS052\2015-11-24\1\2015-11-24\_1\_SS052\_eye.mj2', r'J:\EyeData\SS052\2015-12-01\1\2015-12-01\_1\_SS052\_eye.mj2', r'J:\EyeData\SS052\2015-12-02\1\2015-12-02\_1\_SS052\_eye.mj2', r'J:\EyeData\SS052\2015-12-02\2\2015-12-02\_2\_SS052\_eye.mj2', r'J:\EyeData\SS052\2015-12-03\1\2015-12-03\_1\_SS052\_eye.mj2', r'J:\EyeData\SS052\2015-12-04\1\2015-12-04\_1\_SS052\_eye.mj2', r'J:\EyeData\SS052\2015-12-15\1\2015-12-15\_1\_SS052\_eye.mj2']

# Encountered problems & solutions

1. Videos are not recognised when calling config\_path=deeplabcut.create\_new\_project('Pupil', 'Sylvia',[r'J:\EyeData\SS041\2015-08-11\1\2015-08-11\_1\_SS041\_eye.mj2'], working\_directory=r'C:\STORAGE\OneDrive - University College London\Lab\DLC Pupil', copy\_videos=False)  
   🡪 do not use argument copy\_videos, default is False anyway
2. Problems reading/writing videos/images  
   🡪 check whether package ffmpeg is installed by calling pip list in environment DLC-GPU
3. Warnings about tensorflow being deprecated  
   🡪 ignore (do NOT update to tensorflow 2.)
4. deeplabcut.plot\_trajectories results in empty figures  
   🡪 check that alphavalue in config.yaml is larger 0.0