*Title: goprofrontview*

*Path: C:\Users\vjj14\Desktop\DeepLabCut\goprofrontview-vj-2019-06-17*

*Description: Go Pro video, 2.7k at 120 fps. Filmed from the front. Must be cropped, and resulting video is ok: slightly blurry after cropping. Except in select frames, fingers are indistinguishable.*

*Log File:* *"C:\Users\vjj14\Desktop\DeepLabCut\goprofrontview-vj-2019-06-17\loggoprofrontview.txt"*

*Date:06/17/19*

1. *Initialization (Config): "C:\Users\vjj14\Desktop\DeepLabCut\goprofrontview-vj-2019-06-17\config.yaml"*
2. *Frame Extraction:*
   1. *Function Call:* *deeplabcut.extract\_frames(path\_config\_file,'automatic','kmeans',crop=True)*
   2. *Number of Frames: 130, used 100*
3. *Frame Labeling:*
   1. *Comments (frames skipped, ambiguity, labels)*
      1. *Not bad, labeling slightly difficult because of the blurriness. Did not guess to label parts.*
4. *Train Network:*
   1. *Function Call: deeplabcut.train\_network(path\_config\_file, saveiters=1000, displayiters=100, maxiters=30001)*
   2. *Network Iteration: first network, iter-0*
   3. *Time Elapsed: 50 minutes 2 seconds*
5. *Evaluate Network:*
   1. *Train:2.25 pixels*
   2. *Test:3.59 pixels*
   3. *Test with p-cutoff:2.25*
   4. *Train with p-cutoff:3.43*
6. *Analyzing Videos:*
   1. *Videos:* *[[r"C:\Users\vjj14\Desktop\DeepLabCut\goprofrontview-vj-2019-06-17\videos\gp\_Trim.ts"], [r"C:\Users\vjj14\Desktop\DeepLabCut\goprofrontview-vj-2019-06-17\videos\gp.MP4"]]*
      1. *Duration: Duration of video [s]: 41.65 , recorded with 120.0 fps!*
      2. *Frames: 4998*
      3. *Frame Size: 2704 1520*
      4. *Time Elapsed: 2 minutes 34 seconds*
7. *Results: Could not create labeled video because of the cropping of the video is not supported on deeplabcut. However, the train/test error, labeled pictures, and working with the data leads me to believe that the trained network did very well, and the data is definitely useable.*

***6/19/19 and 6/20/19*** *(6/19 was a short day)*

1. *DataWrangling:*
   1. ***Isolated hand reaching attempts****. Took me a while, but I isolated frames using two ways: hand crosses the line, which means the hand is outside the acrylic and is reaching. The other method was to isolate frames where the hand was within a set distance of where the pellet would be (if it was up). In this case I used 35 pixels.*
   2. ***Created a compilation of hand reaches*** *for easier studying. Used python to automate the writing of a very simple windows batch ‘script’, using ffmpeg to cut small segments around the time of each reach and concatenating them all together.*
   3. ***isolating when the pellet is actually in place*** *(in progress), in hopes of isolating when hand reaches are to be classified as attempts.*
   4. ***Determine whether hand reach is an attempt*** *based on whether the pellet is in place or not.*
2. *Comments:* 
   1. *POTENTIAL PROBLEM*
      1. *Isolated hand reaching attempts seem to be very sensitive to minute changes. Within the video there are two slight bumps/shifts in the video angle (with no visible effects to lighting, etc), between which my ability to find hand attempts within the radius tanked completely. By some freak chance, the tracking went back to normal after the 2nd shift. I should base my reaching attempts on something more flexible instead of hard coding, and at least have ways to know when it happens.*
      2. *FIX: Use likelihood instead of pellet position. If the pellet is at the dispenser position and is undisturbed, the likelihood is a lot higher, and we can use that. Later, with a sloped catch-tray on the dispenser, we’ll figure more stuff out and maybe use positioning again.*