Step 1: open beer

Step 3: open “features\_timeseries” in the HDF5 file

Step 4: you will need three things from these files:

* Worm index
* Timestamp
* Motion\_modes­­

Step 5: Calculate number of frames (aka timestamps) that add up to 10 seconds (Micaela will do this), with 1 second bins \*this is for Alex’s data files only, but the same idea applies to all\* See table below:

|  |  |
| --- | --- |
| Time Stamp Range | X second bin |
| 0.0-26 | 1 |
| 27.0-53 | 2 |
| 54-80 | 3 |
| 81-107 | 4 |
| 108-134 | 5 |
| 135-161 | 6 |
| 162-188 | 7 |
| 189-215 | 8 |
| 216-242 | 9 |
| 243-269 | 10 |

Step 6: The next step is to understand what is going on in “motion\_modes”: this is the interesting data, it has only 4 options, below is what it means.

* 1.0: the worm is moving forward during that timestamp
* -1.0: the worm is moving backward during that timestamp
* 0.0: the worm is paused during that timestamp
* Nan: TierPsy has no clue what is going on, so it has not assigned a data point for the animal

Step 7: you will do this for each individual worm, in each mass pairing file: You will add up the number of 1.0, -1.0, 0, nan’s in EACH time stamp range (see above), and divide that number by 26.

* Example: in your time stamp range that is 26 frames, you see that your motion mode has seven +1.0 frames, ten -1.0 frames, three 0.0 frames and three NAN frames. This sums up to -3 overall.
* From there you will take that sum, -3, and divide by the number of frames it comes from.
  + Aka: -3/26 = -0.11
* You will then take that data point (-0.11) and transfer it into the appropriate “X second bin” in an associated excel file

Step 8: you should perform the above calculations in step 7, for each “X second bin” (aka 10 times) for each worm in the mass pairing file.