**Code base: Fisher, Lu, D’Alessandro, Wilson 2019**

List of scripts/functions include in this code base:

**Figure 1:**

**analyzeOpenLoopTuningScript.m**

-initial processing of visual tuning curves

**plotOrderedReceptiveFields.m**

-Plots heatmaps, histograms and population sum for E-PG visual responses data set

**plotOrderedReceptiveFields\_comparingResponseToPost.m**

-Compares heatmaps, histograms and population sum for E-PG visual responses when the visual stimulus was present vs 250ms after the visual stimulus was removed.

**plotVisualTuningVsDendriticLocation.m**

-Scatter plot of max inhibition vs location of E-PG dendrite in the Ellipsoid body

-Circular correlation coefficient analysis of interactions between visual tuning and dendrite location

**analyzedDeltaYawbyBarPosition.m**

-initial processing of fly movement (delta Yaw) relative to bar position

-obtain a pvalue by comparing individual fly movement responses vs a bootstrap distribution for each bar position response

-analyze significance of p values from all flies across all cue positions using Bonferroni-Holms analysis

**plotFlyPopulationDeltaYawByBarPosition.m**

-compares fly movement response as a function of bar position. Calculates 95% confidence interval using bootstrap distribution from randomly drawn position responses

**analyzedDeltaYawbyBarJumpDistance.m**

-initial processing of fly movement (delta Yaw) relative to the distance the visual bar jumped

-obtain a pvalue by comparing individual fly movement responses vs a bootstrap distribution for each bar jump response

-compares grand fly movement response as a function of the distance the visual bar jumped. Calculates 95% confidence interval using bootstrap distribution

**Figure 2:**

**analyzeClosedLoopTuningScript.m**

-initial processing of closed loop heading tuning curves

**plotOpenLoopVsClosednLoopTuningCurves.m**

- Plots open loop and closed loop tuning curves

-analyzes open loop vs closed loop correlation coef. and compares to shuffled data

-Plots true and shuffled correlation values

**Figure 3:**

**plotBarRandLoc\_ringNeuron\_180degScreens.m**

-Loads R neuron visual responses, finds spikes, plots tuning curve

**plotChrimsonResponseAmp.m**

-Plots E-PG voltage response to chrimson stimuluation

-Scatter plot of mean amplitude vs controls

**Figure 4:**

**PB\_data\_analysis.m**

-Imaging and behavior data processing and analysis

**PB\_ROI\_analysis.m**

-ROI analysis function

**Figure 5:**

**analyze2barRemappingData.m**

-script used for checking data and consolidated tuning curves for a full remapping data set.

**plot2barRemappingDataSet.m**

-plot tuning curves for remapping data set, analyzes relationships between receptive field shape changes, absolute changes and modulation of heading tuning during 2 bar training.

**plot1barControlDataSet.m**

-plot tuning curves for control remapping data set

**Helpers/dependencies:**

analysisClosedLoopTuning.m

analyzeOpenLoopTuning.m

HolmBonferroniTest.m

twoSidePvalueFromDistribution.m

ephySettings.m (Rig parameters)

niceaxes.m

findAveFlyMovementByTrial.m

bluewhitered.m (color map, MatLab File Exchanges, by Nathan Childress)

circ\_corrcc.m (Circular Statistics toolbox for Matlab, by Philipp Berens)