Fiber Photometry data analysis. Matlab scripts used for the paper Wilhelm, Sych et al. NatComm 2023

In our manuscript, we analyzed fiber photometry recording of GCaMP6m signals from the freely moving mice performing T-maze alternation task. We used Matlab 2020b version. The data needed for the current analysis can be found at Zenodo <https://zenodo.org/records/8387632> This dataset includes the pre-processed data from the fiber-photometry as well as miniscope recordings.

Code is organized into two folders:

1. **utilities**: functions allowing for calculating

* z-scored dFF (zscore\_dF\_norm, ResampledSession\_v2, ResampledSession\_v2D\_average, ResampleToMultipleFixPoints,
* extract session related info (extract\_session, extract\_session\_pharma, NewDeltaTaverage\_time\_between\_events)
* calculate AUC (compare\_vectors\_ROC)
* plot and save figures (plot\_input\_shaded\_error, NewShadedErrorBar, save\_plots)

1. **averaging\_photometry\_signal**: functions allowing to analyse photometry signals and plot it. We use the same algorithms for calculating the resampled z-scored dFF (utilities), but structured these functions by the signal type/ figures it relates to.

* “averaging\_whole\_session\_photometry” is used to calculate the dFF signal and average it across trials and mice (Fig2a)
* “averaging\_maintanance\_photometry” is focused on calculating the dFF signal during the maintenance period and averaging it across trials and mice (Fig2c, SFig3a-d)
* “averaging\_photometry\_470\_and\_425” is used for Sfig2b
* “averaging\_whole\_session\_photometry\_pharma” is used for Fig4a and SFig5a allowing to compare the Cmpd and vehicle signals
* “averaging\_maintanance\_miniscope” and “averaging\_whole\_session\_miniscope”

are used for SFig8