Note: If you just use HDBCellSCAN for your Ca imaging analysis, what you only need to know is #4-7 in “Protocol for two photon data analysis”.

Protocol for two photon data analysis.

Note that, the data structure I impose for two photon imaging data is crucial for the analysis.

Please use the same directory structure, unless you change the matlab code.

1. Imaging experiment (Olympus FV-FPRMS)

Recording PC: [Task]\[Mouse]\[Date]\[Session]\\*.oir

Note: each [Session] folder contains a continuous data. Different sessions can be analyzed all together as long as the imaging plane is the same (same day, same head angle, same depth, same head position).

1. Transfer data to an external HD (Raw data HD).

\home\ImagingData\[Task]\[Mouse]\[Date]\[Session]\\*.oir

1. On your data analysis PC,

Open ImageJ. Open a plugin, *Olyumpus Viewer*: Convert to Tiff files.

\home\ImagingData\[Task]\[Mouse]\[Date]\[Session]\\*.tif

↓

1. Write/Update database m-file in

\home\ImagingData\[Task]\make\_db\_[Mouse].m

↓

1. CaRoiGu\_v02: Press three processing buttons and RUN.

#1 (image registration and SVD),

\home\ImagingData\[Task]\[Mouse]\[Date]\regops\_[Mouse] \_[Date]\_Plane#\_Ch#\_MinClust#.mat

\home\ImagingData\[Task]\[Mouse]\[Date]\SVDroi\_[Mouse] \_[Date]\_Plane#\_Ch#\_MinClust#.mat

\home\ImagingData\[Task]\[Mouse]\[Date]\[Session]\Plane[#]\\*.tif % movement corrected movie.

\home\ImagingData\[Task]\[Mouse]\[Date]\[Session]\Plane[#]\x5movie\\*x5\*.tif % x5 times fast

#2 (ROI detection).

\home\ImagingData\[Task]\[Mouse]\[Date]\ROI\_[Mouse] \_[Date]\_Plane#\_Ch#\_MinClust#.mat

#3 (signal extraction).

\home\ImagingData\[Task]\[Mouse]\[Date]\Fsig\_[Mouse] \_[Date]\_Plane#\_Ch#\_MinClust#.mat

1. (CaRoiGu\_v02 #4)

RoiGui\_005: Manual ROI curation (Read a Fsig\_\*\* file)

\home\ImagingData\[Task]\[Mouse]\[Date]\[Session]\Fsig\_[Mouse]\_[Date]\_plane#\_Ch#\_MinClust#\_proc.m

↓

1. CaRoiGu\_v02

#5 Re-calculatiuon of F-signal

Protocol for analyzing behavior data

1. Behavior experiment

Recording PC: [Task]\[Mouse]\[Date]\ \*.dak

Note: dak format is a special binary file format to store streaming data written by Kosuke Hamaguchi.

1. Transfer data to an external HD (Raw data HD).

[Task]\[Mouse]\[Date]\ \*.dak

1. On your data analysis PC,

MATLAB: LeverTaskAnalysis\_\*

Data is uploaded to MySQL: tbl\_basicheadfix\_analysis

Protocol for relating behavior data and imaging data

1. MATLAB: Behavior\_Activity\_Analysis\_001

Press [Combine ProcBehavior data] button. Select the behavior data and proc file to be combined.

Ex)

Behavior\_Data: [Task]\[Mouse]\[Date]\ \*.dak

Imaging\_Data: [Task]\[Mouse]\[Date]\[Session]\Fsig\_[Mouse]\_[Date]\_plane#\_Ch#\_MinClust#\_proc.mat

1. Behavior experiment