For each file we extracted some variables (spike count and spectral entropy). This information was extracted for each spiking activity channel and LFP channel.

The data is save in a separate .mat file names such as Summary\_ pjx310c.09.mat

Each file has the prefix Summary\_ and the later part of the name is same as the original file name.

These matfiles can be taken form

mat\_file\_spike\_rate\_spectral\_entropy

In each file there are variable such as

Measure of oscillations

spect\_ent\_gp % This is spectral entropy (a measure of oscillations) of GPE LFP : For all channels that were available in a particular file. It is in a format N x M. N is number of channels and M is number of time windows

If a file does not have any recording from GPE then this matrix will be empty. Each epoch is 500ms long and overlap between adjacent windows is 250ms

spect\_ent\_str % This is spectral entropy (a measure of oscillations) of STR LFP : For all channels that were available in a particular file. It is in a format N x M. N is number of channels and M is number of time windows

If a file does not have any recording from GPE then this matrix will be empty. Each epoch is 500ms long and overlap between adjacent windows is 250ms

spect\_ent\_stn % This is spectral entropy (a measure of oscillations) of STN LFP : For all channels that were available in a particular file. It is in a format N x M. N is number of channels and M is number of time windows

If a file does not have any recording from GPE then this matrix will be empty. Each epoch is 500ms long and overlap between adjacent windows is 250ms

Measure of spike rate

sp\_count\_gp\_sua % This is spike count in a 500ms window for GPE SUA (single unit activity): For all channels that were available in a particular file. It is in a format N x M. N is number of spiking activity channels and M is number of time windows. If a file does not have any recording from SUA channels then this matrix will be empty. M is same as for the LFP windows.

sp\_count\_gp\_ta % This is spike count in a 500ms window for GPE TA type neurons: For all channels that were available in a particular file. It is in a format N x M. N is number of spiking activity channels and M is number of time windows. If a file does not have any recording from GP-TA channels then this matrix will be empty. M is same as for the LFP windows.

sp\_count\_gp\_ti % This is spike count in a 500ms window for GPE TI type neurons: For all channels that were available in a particular file. It is in a format N x M. N is number of spiking activity channels and M is number of time windows. If a file does not have any recording from GP-TI channels then this matrix will be empty. M is same as for the LFP windows.

sp\_count\_stn\_sua % This is spike count in a 500ms window for STN SUA (single unit activity): For all channels that were available in a particular file. It is in a format N x M. N is number of spiking activity channels and M is number of time windows. If a file does not have any recording from STN SUA channels then this matrix will be empty. M is same as for the LFP windows.

sp\_count\_str\_sua % This is spike count in a 500ms window for STR SUA (single unit activity): For all channels that were available in a particular file. It is in a format N x M. N is number of spiking activity channels and M is number of time windows. If a file does not have any recording from STR SUA channels then this matrix will be empty. M is same as for the LFP windows.

In each file you will also variable

% To pool all the data in a single matrix I created a big structure will all possible channels recorded in all the files. This will allow us to sum/average data across files if the same channel is recorded again. Each recording channel has a name and number. That number is available in the following variables.

gp\_sua\_chan\_id % Channel id for each of the channels recorded in a particular file

gp\_ta\_chan\_id % Channel id for each of the channels recorded in a particular file

gp\_ti\_chan\_id % Channel id for each of the channels recorded in a particular file

str\_sua\_chan\_id % Channel id for each of the channels recorded in a particular file

stn\_sua\_chan\_id % Channel id for each of the channels recorded in a particular file

gp\_lfp\_chan\_id % Channel id for each GPE LFP recorded in a particular file

stn\_lfp\_chan\_id % Channel id for each STN LFP recorded in a particular file

str\_lfp\_chan\_id % Channel id for each STR LFP recorded in a particular file

To obtain the channel name you need to go to the file

all\_channels\_names.m