Interactions with other pipelines

because spike_analysis incorporates the sorted_neurons table (f.e. unit_IDs and site_IDs) into behavior and ephys data, it is used as a first step in all ephys analysis.

Outputs in Y:\Projects\project\ephys\version:

File	Info
population_monkey_session.mat	spike data sorted by unit for each session
sites_monkey_session.mat	LFP data sorted by site for each session
by_block_monkey_session.mat	body signals sorted by block for each session
Mon_sorted_neurons.xls	copies of the used sorted neurons tables from dropbox
keys_Monkey.mat	copy of the keys used when running ph_initiation
tuning_table_combined.mat	Anova results stored in a table
tuning_table_combined_CI.mat	Anova results restructured according to contra/ipsi definitions
tuning_table_combined.xls	simplified excel table
spike_shapes	Spike shapes, firing rates over time, and ISI plots for re-assessing spike sorting

The three main files come in a specific data structure, which contain the same fields except for the respective data:

- by_block(body signals) - only trial information and body signals
- sites (LFP) - additional site information and LFP, no body signals
- population (spikes) - additional unit information and spike_arrival times, no LFP, no body signals

Trial structure subfields (By_block files)

to be removed:

```
                cue_pos: NaN
              cue_shape: NaN
            all_tar_pos: [2x1 double]
                col_dim: [2x3 double]
                col_bri: [2x3 double]
```

Condition info	Format	Info
type	scalar	from data
effector	scalar	from data
reach_hand	scalar	from data
choice	scalar	from data
success	scalar	from data
completed	scalar	from data
correct_targets	scalar	from data
target_selected	scalar	from data
n_nondistractors	scalar	from data
n_distractors	scalar	from data

Condition info	**Format**	**Info**
difficulty	scalar	from data
stimuli_in_2hemifields	scalar	from data
perturbation	scalar	using perturbation_groups key ??
dataset	scalar	Dataset from sorted_neurons (only in spikes so far ??)
Timing info	**Format**	**Info**
date	scalar	from data
block	scalar	from data
run	scalar	from data
n	scalar	from data
trial_onset_time	scalar	from data
run_onset_time	scalar	from data
states	array	array of events marked in this trial
states_onset	array [s]	corresponding onset times (relative to state 2)
Spatial info	**Format**	**Info**
fix_pos	complex	x is real, y is imaginary (already preprocessed?)
tar_pos	complex	x is real, y is imaginary
stm_pos	complex	x is real, y is imaginary
Response info	**Format**	**Info**
rea_off	complex	x is real, y is imaginary
sac_off	complex	x is real, y is imaginary
sac_lat	scalar	Saccade RT (in seconds)
rea_lat	scalar	Reach RT (in seconds)
Specific data	**Format**	**Info**
TDT_ECG1	array	Body signal Data (ECG1,CAP1,POX1)
TDT_ECG1_SR	scalar	Sampling rate
TDT_ECG1_t0_from_rec_start	scalar	state 2 onset relative to start of the recording (block?)
TDT_ECG1_tStart	scalar	(usually negative) how much of the stream is before state 2 - due to shift!!
LFP	array	LFP data, not called TDT_LFPx any more, but SR,t0,andtStart are...
arrival_times	array	in seconds, relative to this trial's state 2
FR_average	scalar	average firing rate for this unit in this trial
accepted	scalar	trial accepted for this unit
FR	scalar	??
stability_rating	scalar	why is this here ??

Additional Site files fields

Fieldname	**Example**	**Info**
site_ID	'Bac_20210706_Site_01	as assigned in sorted_neurons, in population files this is the corresponding site for this unit
target	'dPul_R'	recording target from sorted_neurons
perturbation_site	'NA'	perturbation target from sorted_neurons
grid_x	3	grid location from sorted_neurons
grid_y	-4.5	grid location from sorted_neurons

Fieldname	Example	Info
electrode_depth	45	Aimed_electrode_depth from sorted_neurons
monkey	'Bacchus_phys'	as assigned in sorted_neurons (?)

Additional Population file fields

Fieldname	Example	Info
unit_ID	'Bac_20210706_01'	as assigned in sorted_neurons
channel	2	channel the unit was recorded in
block_unit	{3×1 cell}	which cluster in which block are combined in this unit
SNR_rating	2	SNR rating (either from sorted_neurons or automatic?)
Single_rating	1	Single rating (either from sorted_neurons or automatic?)
stability_rating	2	stability rating (either from sorted_neurons or automatic?)
quantSNR	11.5	KK automatic SNR
n_waveforms	36379	number of spikes
waveform_average	[1×32 single]	average waveform of this unit, 32 datapoints per waveform
waveform_std	[1×32 single]	std of waveform for each bin
waveform_width	3.0224e-04	width (in time?)
waveform_amplitude	173.2376	amplitude (?)
FR	2.68	average firing rate across all data
monkey	'Bacchus_phys'	