

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
<code>population_monkey_session.mat</code>	spike data sorted by unit for each session
<code>sites_monkey_session.mat</code>	LFP data sorted by site for each session
<code>by_block_monkey_session.mat</code>	body signals sorted by block for each session
<code>Mon_sorted_neurons.xls</code>	copies of the used sorted neurons tables from dropbox
<code>keys_Monkey.mat</code>	copy of the keys used when running <code>ph_initiation</code>
<code>tuning_table_combined.mat</code>	Anova results stored in a table
<code>tuning_table_combined_CI.mat</code>	Anova results restructured according to contra/ipsi definitions
<code>tuning_table_combined.xls</code>	simplified excel table
<code>spike_shapes</code>	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
<code>type</code>	scalar	from data
<code>effector</code>	scalar	from data
<code>reach_hand</code>	scalar	from data
<code>choice</code>	scalar	from data
<code>success</code>	scalar	from data
<code>completed</code>	scalar	from data
<code>correct_targets</code>	scalar	from data
<code>target_selected</code>	scalar	from data
<code>n_nondistractors</code>	scalar	from data
<code>n_distractors</code>	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	0	apparently bugged
waveform_average	[1×30 single]	average waveform of this unit
waveform_std	[1×30 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

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