

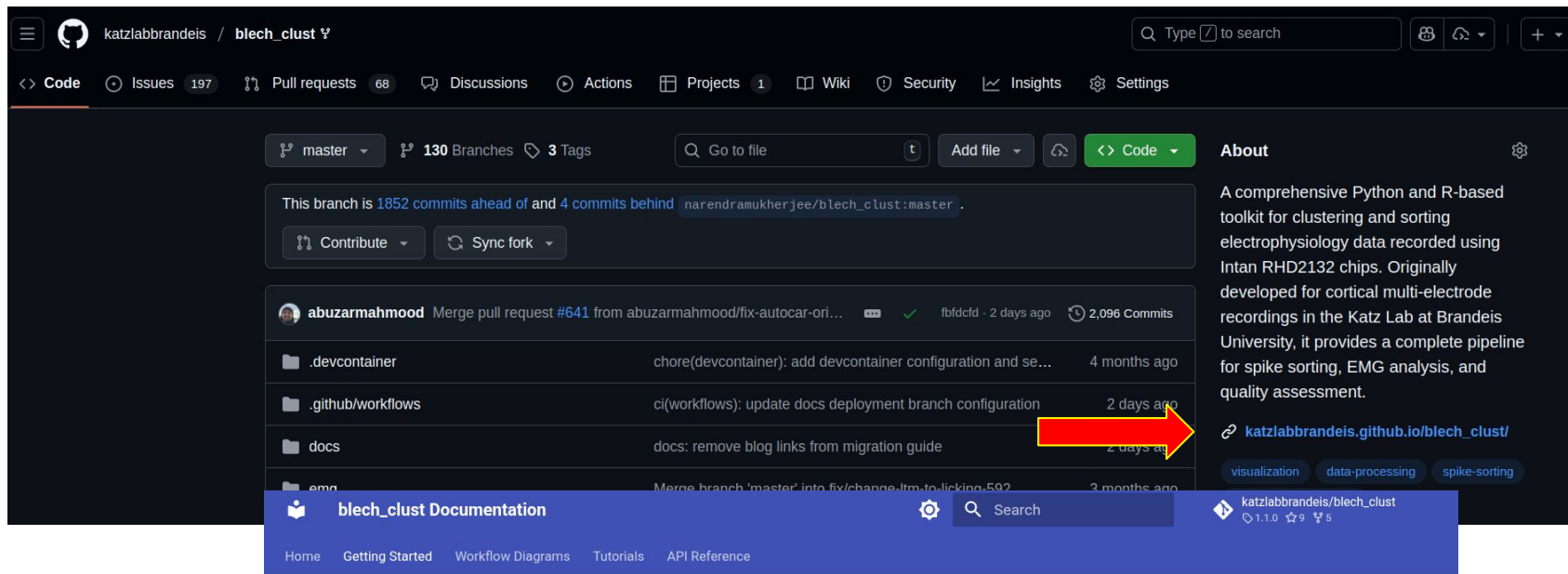
blech_clust

The secrets within
a.k.a.

Some of the lesser known but important features (according to Abu)

As of 1/15/26

Docs + Migration guide



katlabbrandeis / blech_clust

master 130 Branches 3 Tags

Go to file Add file Code

This branch is 1852 commits ahead of and 4 commits behind narendramukherjee/blech_clust:master.

Contribute Sync fork

abuzarmahmood Merge pull request #641 from abuzarmahmood/fix-autocar-ori... 2 days ago 2,096 Commits

- .devcontainer chore(devcontainer): add devcontainer configuration and se... 4 months ago
- .github/workflows ci(workflows): update docs deployment branch configuration 2 days ago
- docs docs: remove blog links from migration guide 2 days ago
- emg Merge branch 'master' into fix/change_lim_to_licking_592 3 months ago

blech_clust Documentation

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Search

katlabbrandeis/blech_clust 1.1.0 9 5

visualization data-processing spike-sorting

About

A comprehensive Python and R-based toolkit for clustering and sorting electrophysiology data recorded using Intan RHD2132 chips. Originally developed for cortical multi-electrode recordings in the Katz Lab at Brandeis University, it provides a complete pipeline for spike sorting, EMG analysis, and quality assessment.

katzlabbrandeis.github.io/blech_clust/

Getting Started

Installation

Quick Start

Migration Guide

Overview

Removed Features

File Mapping

QA Improvements

Migration Guide from Original blech_clust

This guide documents the changes between the [original blech_clust](#) and the current [katzlabbrandeis fork](#).

Overview of Changes

The katzlabbrandeis fork represents a significant modernization of the original codebase:



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Overview of Changes

Migration Guide Sections

Quick Reference: New Features

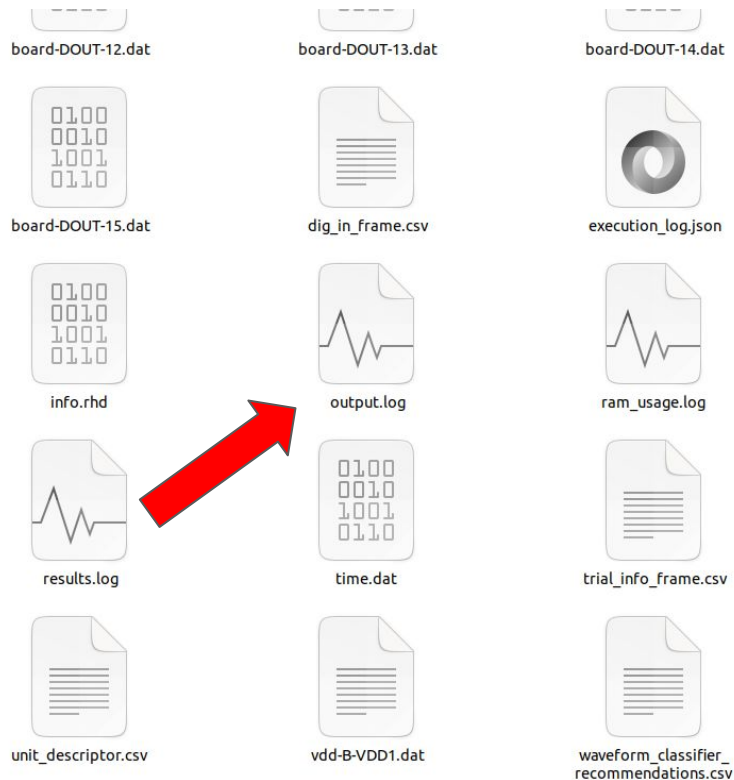
Installation and Environment

Testing Infrastructure

Metadata and Parameter
Recording

Common Average Reference
Improvements

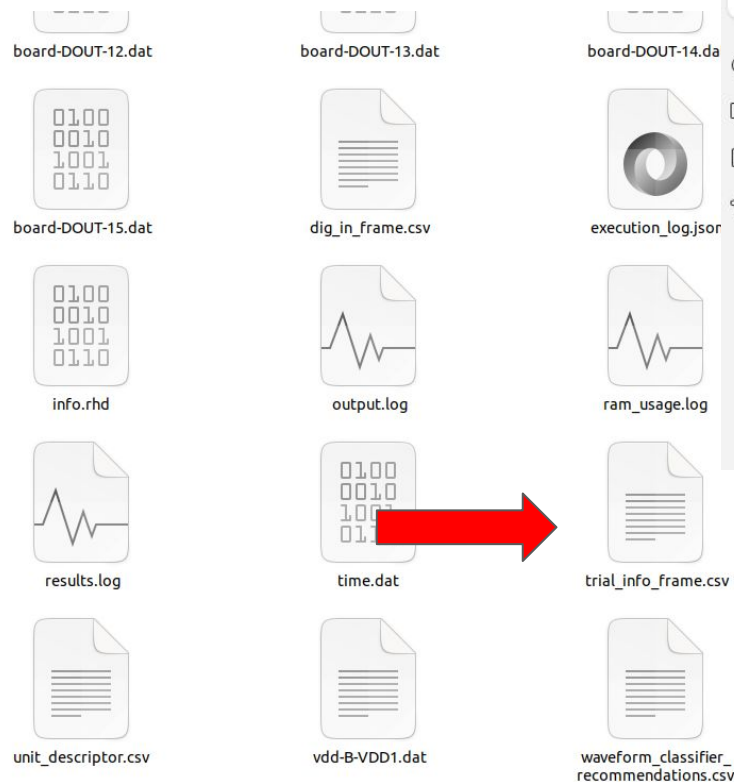
Basic debugging



```
1 =====
2 Attempting blech_exp_info.py, started at 2026-01-13 16:23:47
3 Git branch: master
4 Git commit: 454f07821b5ca186cd6fdc87430a58ca3727d544
5 =====
6 =====
7 Completed blech_exp_info.py, ended at 2026-01-13 16:23:47
8 =====
9 =====
10 Attempting blech_common_avg_reference.py, started at 2026-01-13 16:26:05
11 Git branch: master
12 Git commit: 454f07821b5ca186cd6fdc87430a58ca3727d544
13 =====
14 Processing : /media/storage/abu_resorted/bla_gc/AM11_4Tastes_191030_114043_copy/
15 Number of groups : 11
16 bla-04 :: 9 channels ::
17 ['A_00' 'A_01' 'A_24' 'A_26' 'A_27' 'A_28' 'A_29' 'A_30' 'A_31']
18
19 bla-05 :: 5 channels ::
20 ['A_02' 'A_03' 'A_04' 'A_05' 'A_07']
21
22 bla-00 :: 1 channels ::
23 ['A_06']
24
25 gc-05 :: 5 channels ::
26 ['A_08' 'A_10' 'A_14' 'A_16' 'A_20']
27
28 gc-09 :: 1 channels ::
29 ['A_09']
30
31 gc-06 :: 1 channels ::
32 ['A_11']
33
34 gc-08 :: 1 channels ::
35 ['A_12']
36
37 gc-03 :: 6 channels ::
38 ['A_13' 'A_18' 'A_19' 'A_21' 'A_22' 'A_23']
39
```

Plain Text ▾ Tab Width: 8 ▾ Ln 1, Col 1 ▾ INS

Easy access to trial info



ONLYOFFICE

*trial_info_fra... x

trial_info_frame

File Home Insert Draw Layout Formula Data Collaboration

Calibri 11

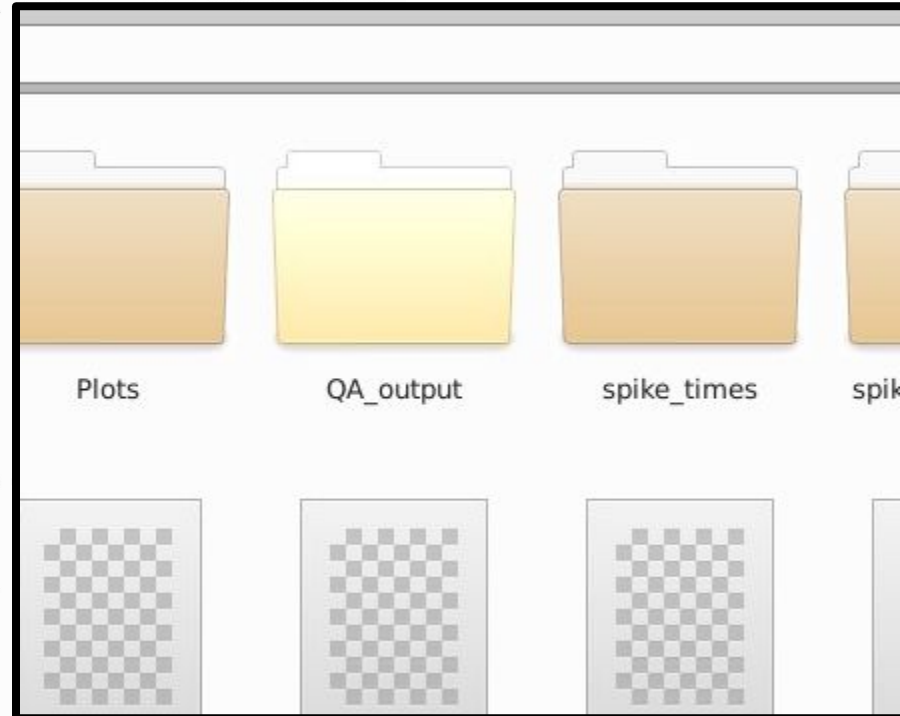
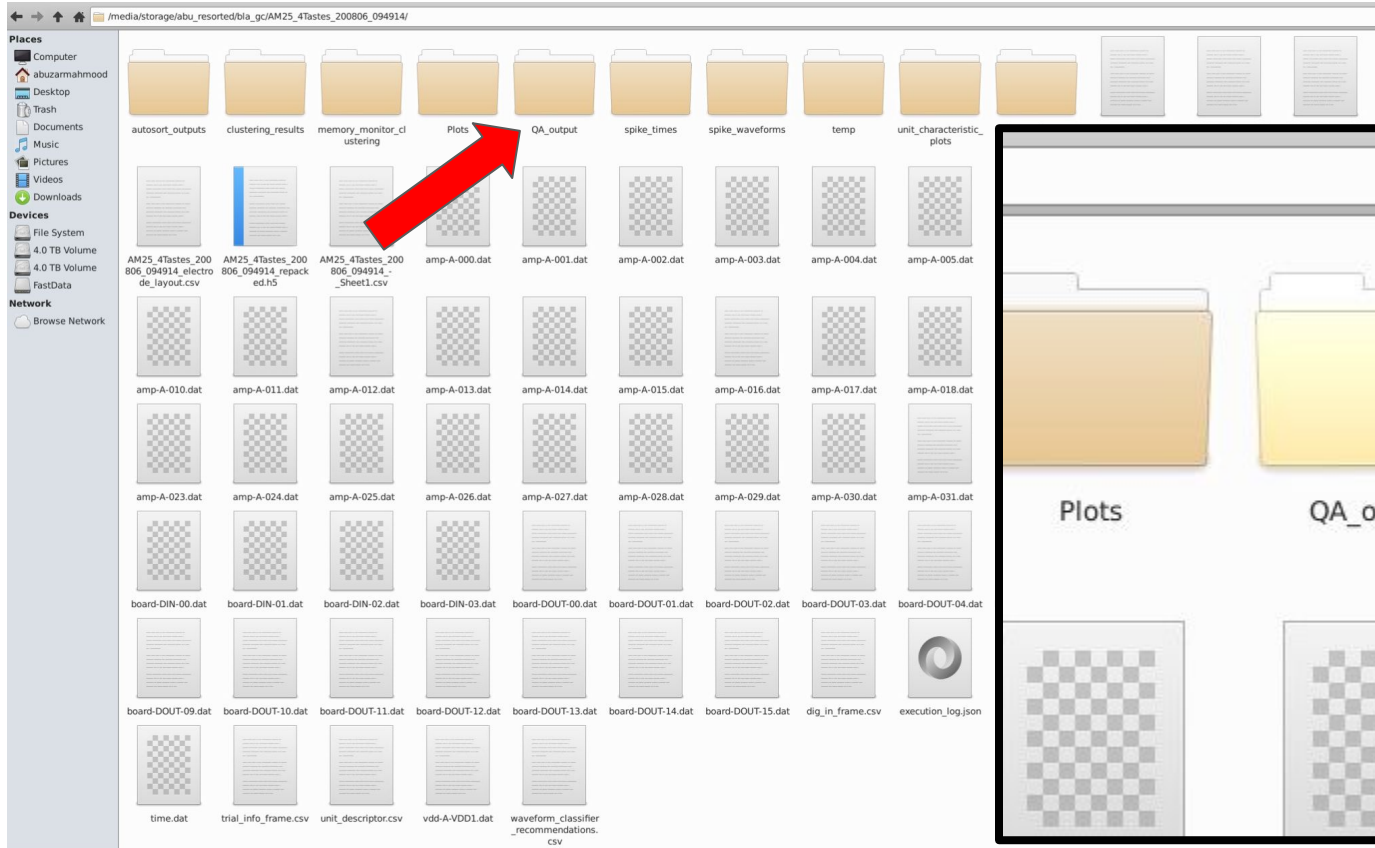
B I U A₁ A₂ A₃

H27 fx

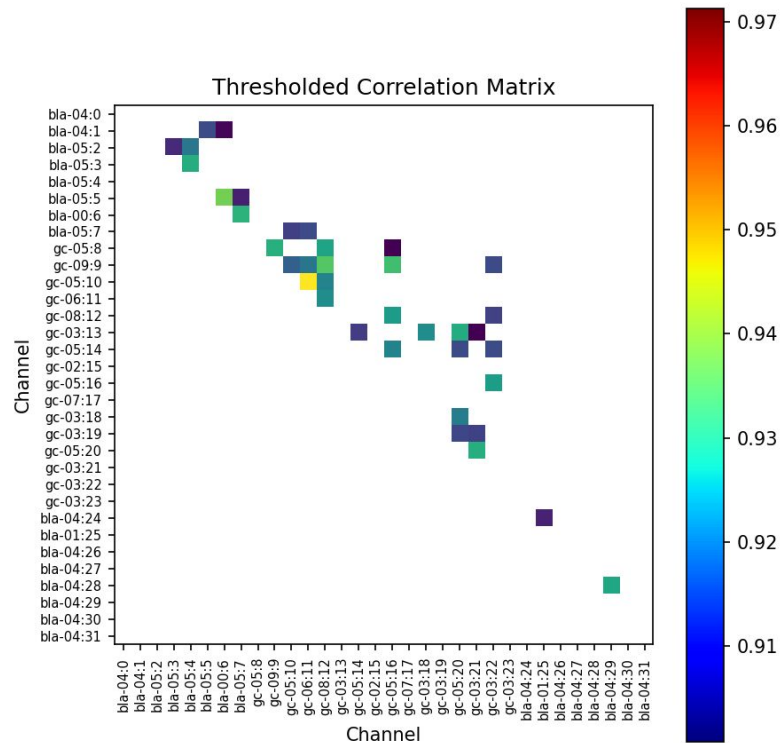
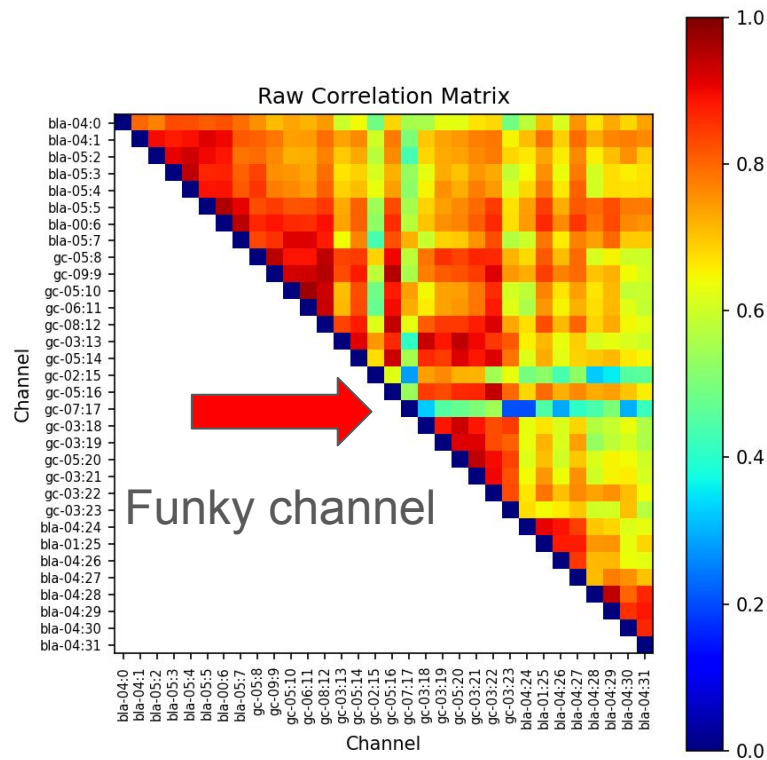
	A	B	C	D	E	F	G
1	dig_in_num	dig_in_name	taste	start_taste	end_taste	abs_trial_n	taste_r
2	2	board-DIN-02	ca	1529342	1534149	0	
3	1	board-DIN-01	suc	2134755	2140163	1	
4	2	board-DIN-02	ca	2740485	2745292	2	
5	3	board-DIN-03	qhcl	3345897	3350704	3	
6	1	board-DIN-01	suc	3951309	3956717	4	
7	3	board-DIN-03	qhcl	4557322	4562129	5	
8	2	board-DIN-02	ca	5162734	5167540	6	
9	0	board-DIN-00	nacl	5768145	5770699	7	
10	0	board-DIN-00	nacl	6370774	6373328	8	
11	3	board-DIN-03	qhcl	6973933	6978739	9	
12	2	board-DIN-02	ca	7579344	7584150	10	
13	0	board-DIN-00	nacl	8184755	8187309	11	
14	2	board-DIN-02	ca	8787609	8792416	12	
15	2	board-DIN-02	ca	9392661	9397467	13	
16	2	board-DIN-02	ca	9998058	1E+07	14	
17	0	board-DIN-00	nacl	1.1E+07	1.1E+07	15	

Dig_in_num_taste,
Dig_in_name_taste,
Taste,start_taste,
End_taste,
Abs_trial_num,
Taste_rel_trial_num,
Dig_in_num_laser,
Dig_in_name_laser,
Laser,
Start_laser,
End_laser,
Laser_duration,
Laser_lag,
Start_taste_ms,
End_taste_ms,
Start_laser_ms,
End_laser_ms,
Laser_duration_ms,
laser_lag_ms

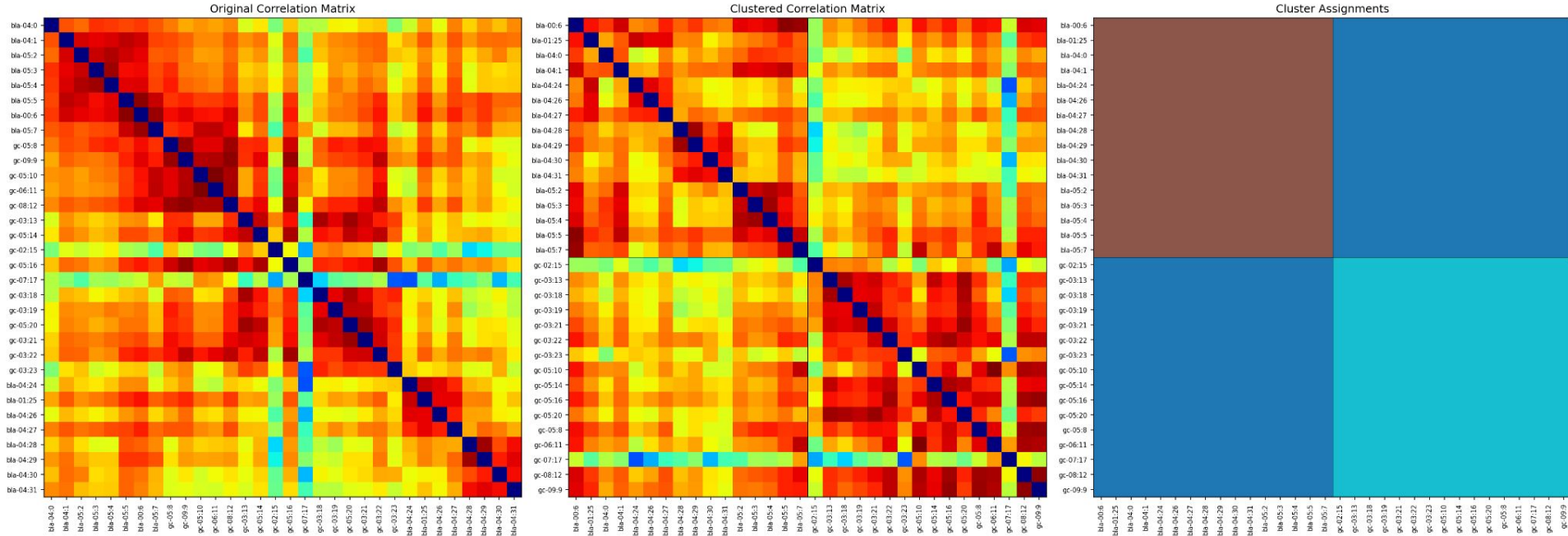
Lots of things in QA_outputs dir



Common Average Reference outputs

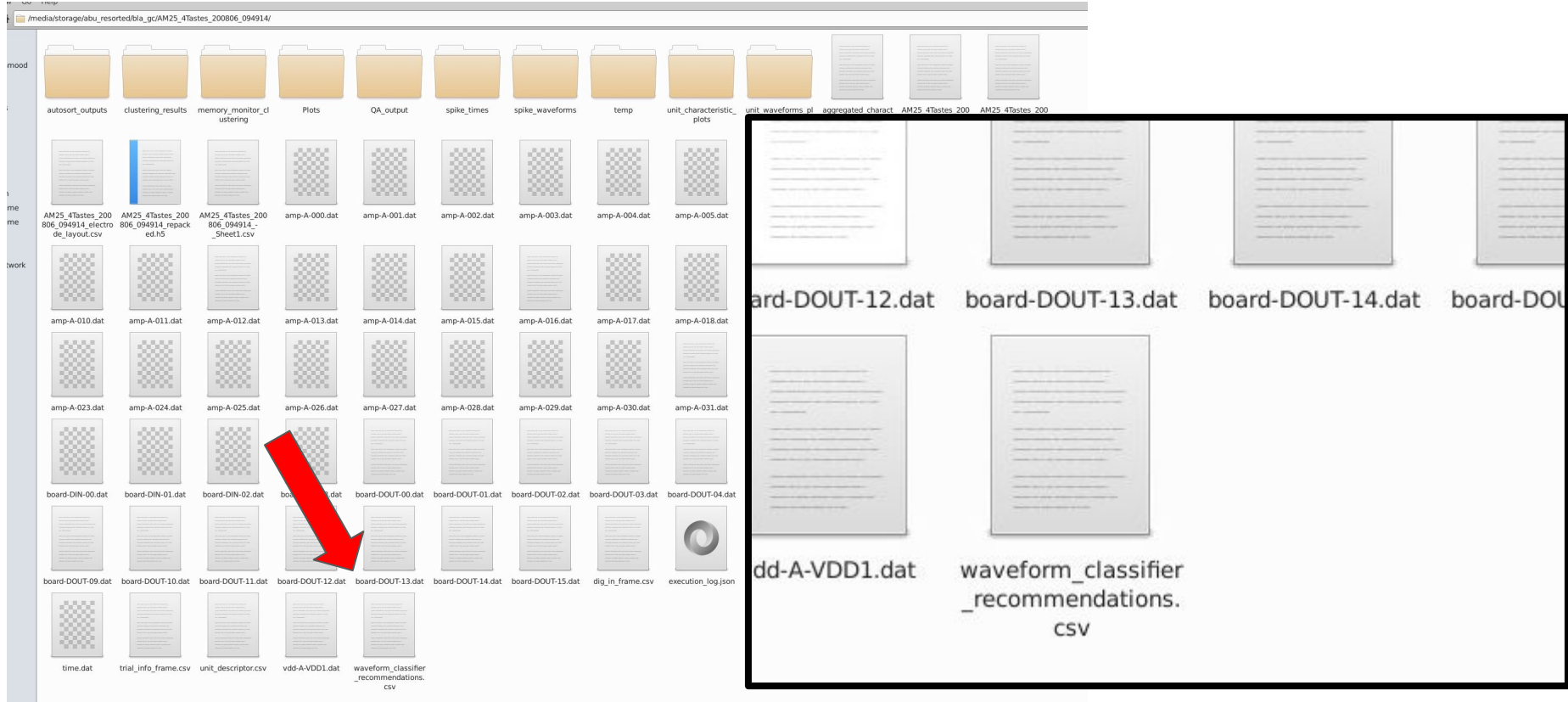


Automated sub-clustering of CAR groups

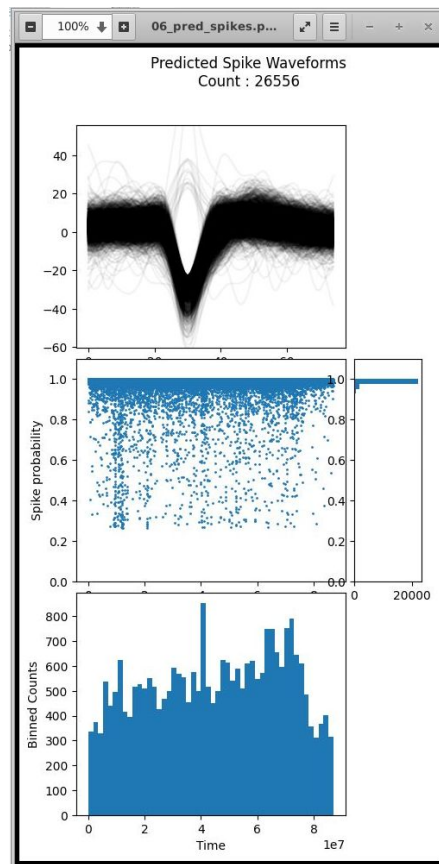


of clusters determined using BIC on K-Means

Classifier recommendations



Classifier recommendations



WPS Office waveform_classification_recommendations

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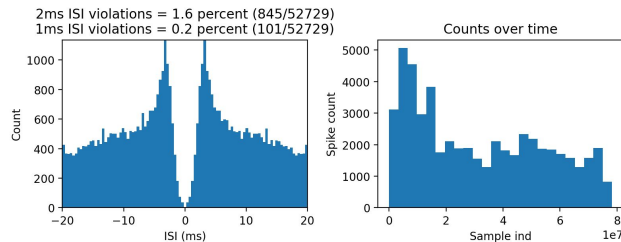
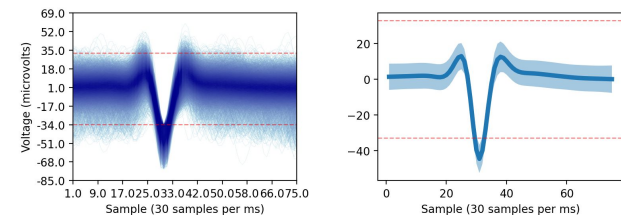
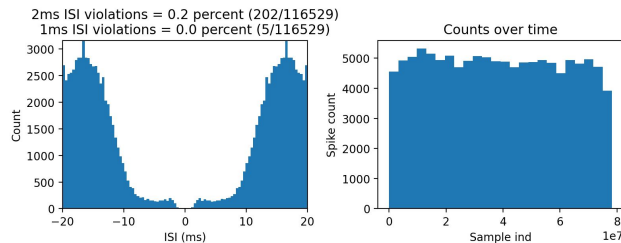
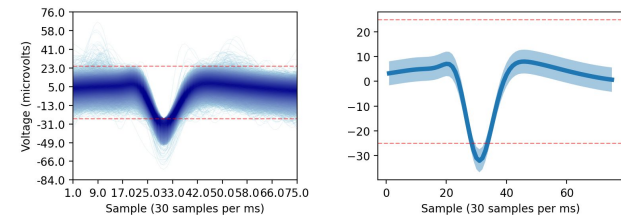
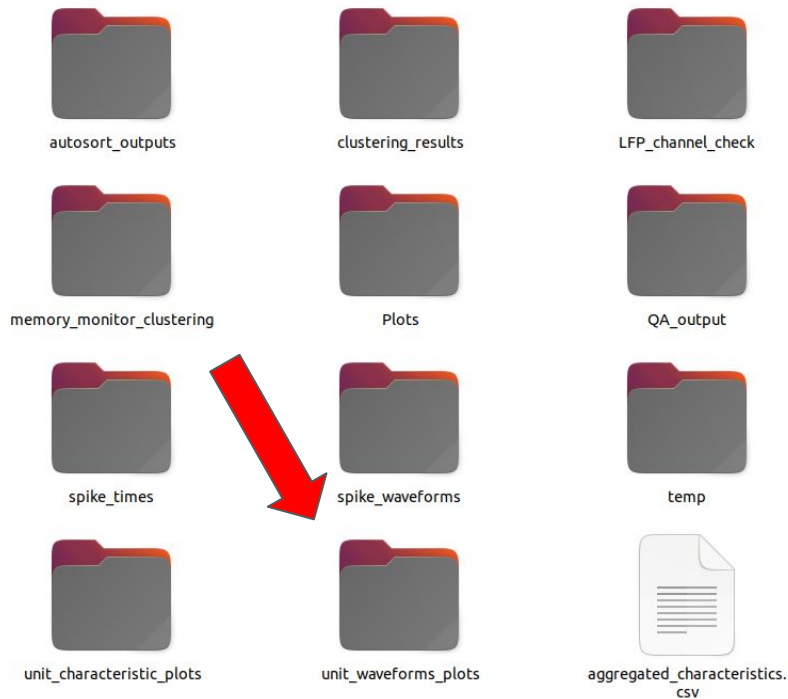
B I U

	A	B	C	D	E	F
1		electrod	count	mean_pro	percenti	percenti
2	1	1	2110	0.878	0.377	0.997
3	3	3	30760	0.965	0.821	0.999
4	6	6	26556	0.971	0.999	0.999
5	7	7	7363	0.66	0.288	0.987
6	8	8	2316	0.635	0.286	0.979
7	9	9	4432	0.789	0.313	0.995
8	10	10	14113	0.845	0.359	0.996
9	11	11	12135	0.908	0.375	1
10	12	12	3780	0.739	0.301	0.995
11	13	13	2243	0.647	0.29	0.98
12	14	14	2198	0.654	0.292	0.985
13	16	16	28631	0.96	0.792	0.999
14	19	19	5459	0.648	0.288	0.98
15	21	21	5257	0.654	0.291	0.981
16	22	22	2158	0.83	0.322	0.996
17	23	23	3946	0.687	0.298	0.99
18	25	25	16421	0.967	0.818	1
19	26	26	2245	0.727	0.303	0.996
20	27	27	5631	0.624	0.29	0.968
21	28	28	9271	0.955	0.776	0.998
22	29	29	5088	0.659	0.294	0.985
23	30	30	2583	0.911	0.412	0.999
24	31	31	2219	0.843	0.36	0.996

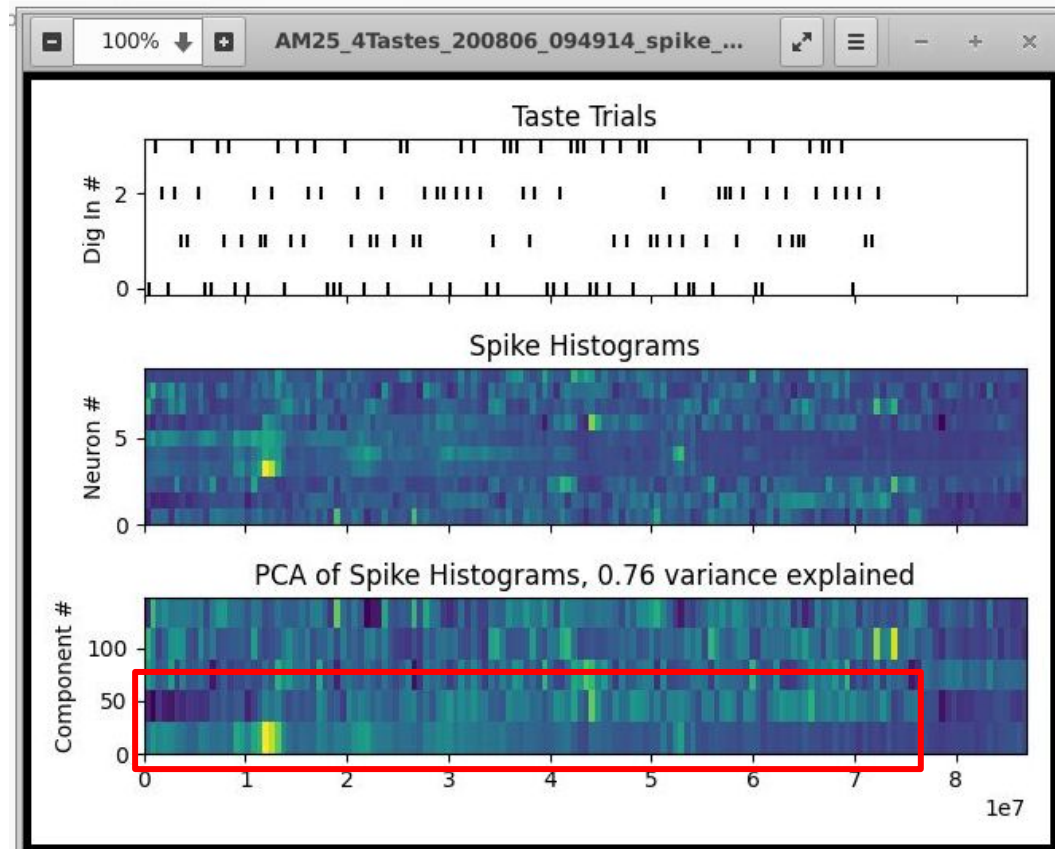
All about unit stability

Sorted units spike-counts

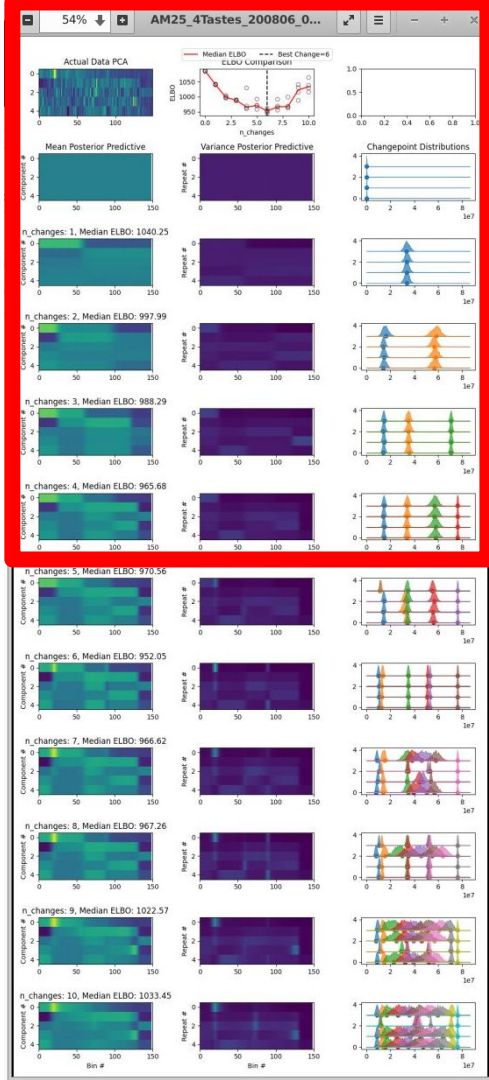
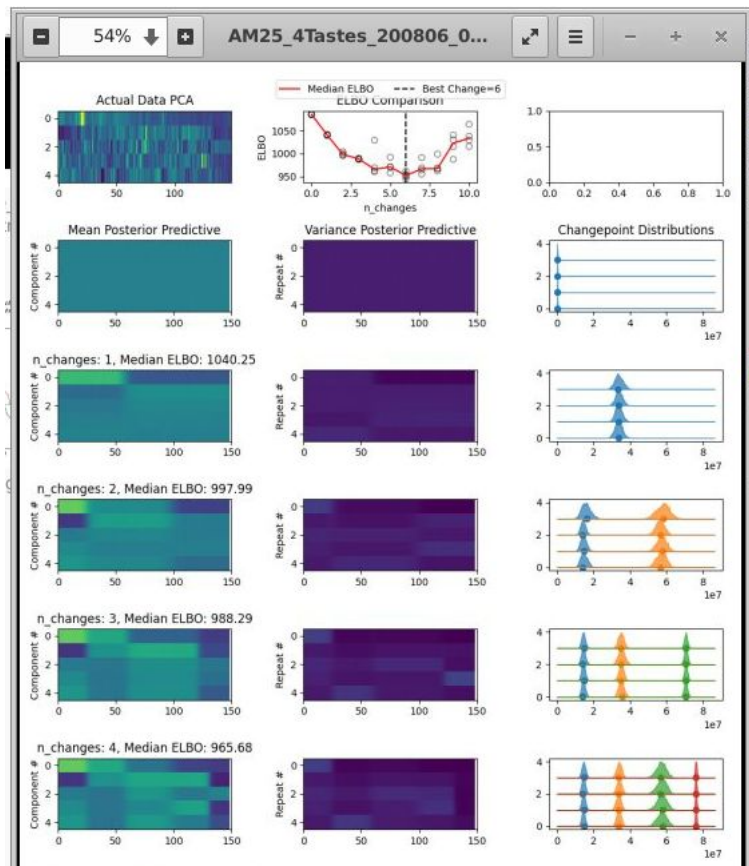
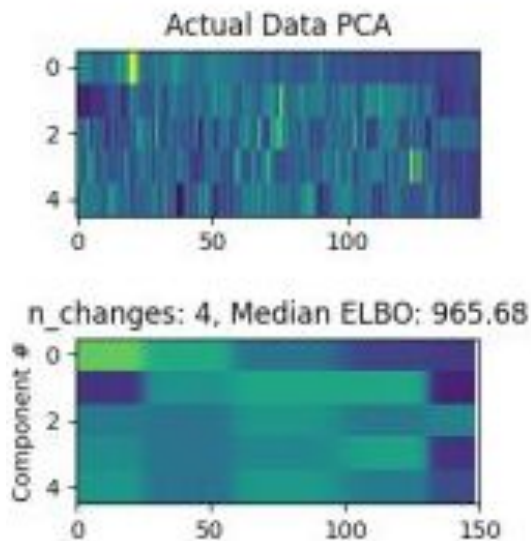
u... rted / bla_gc / AM11_4Tastes_191030_114043_copy



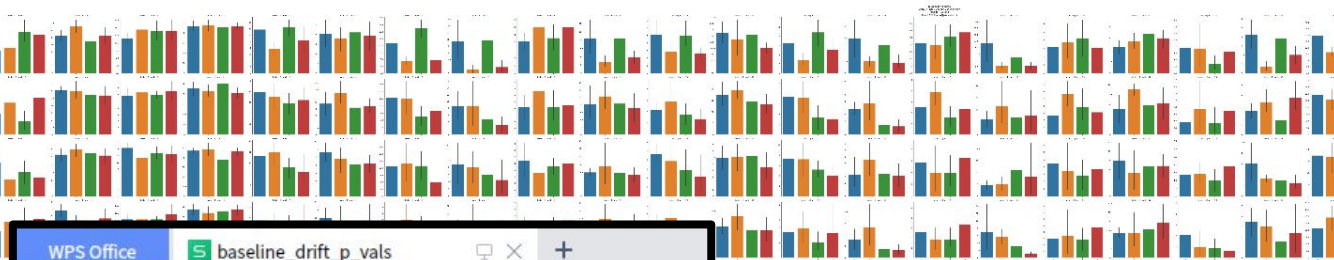
Bulk firing variability over session



Bulk firing variability over session



Changes in baseline rates



WPS Office

baseline_drift_p_vals

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A⁺

A⁻

B

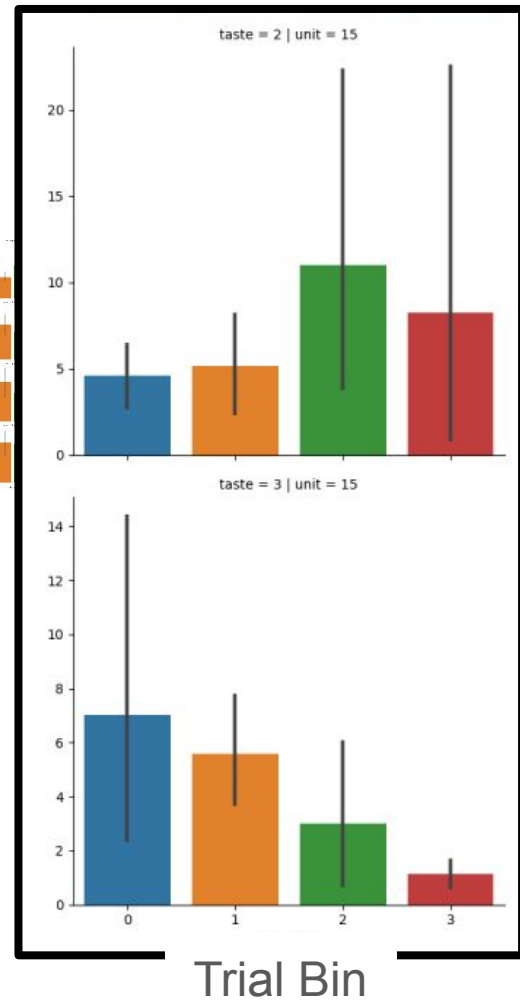
I

U

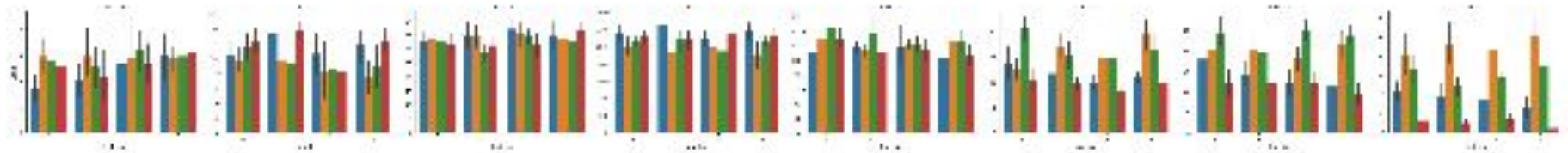
fx

A1

	A	B	C	D	E	F
1		trial_bin	taste	trial_bin * taste	Residual	unit
2	0	0.67601	0.03115	0.06798		0
3	1	0.10324	0.77822	0.4861		1
4	2	0.68838	0.49648	0.61009		2
5	3	0.84285	0.76545	0.08746		3
6	4	0.22501	0.49345	0.39878		4
7	5	0.23565	0.27651	0.71571		5
8	6	0.0747	0.87517	0.00599		6
9	7	0.03895	0.732	0.26052		7
10	8	0.64293	0.86977	0.36059		8
11	9	0.50257	0.16761	0.2267		9



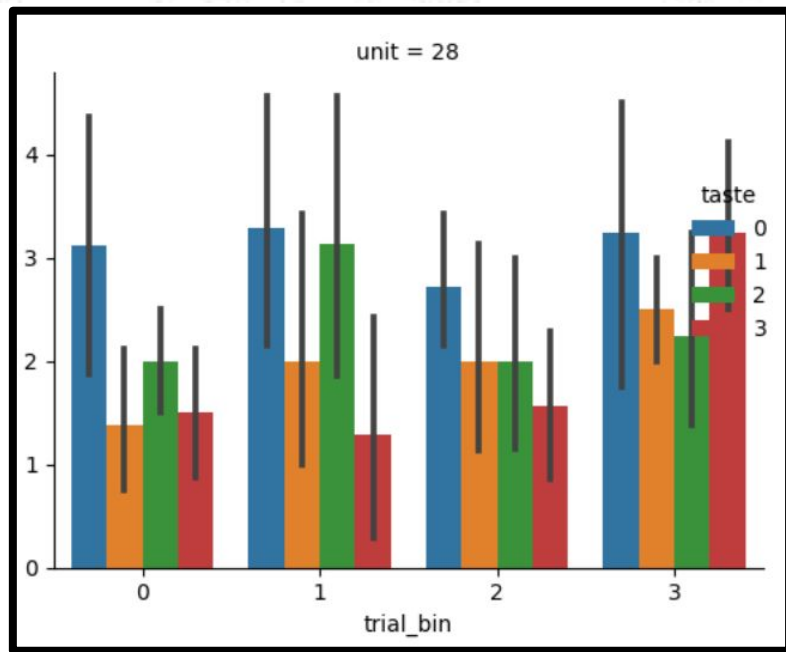
Changes in baseline rates



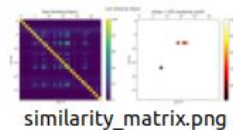
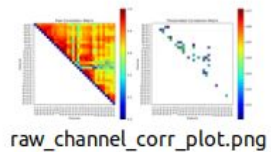
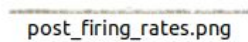
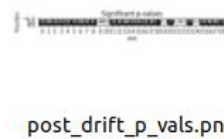
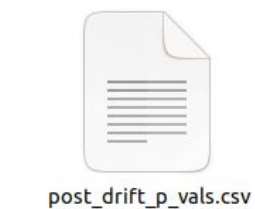
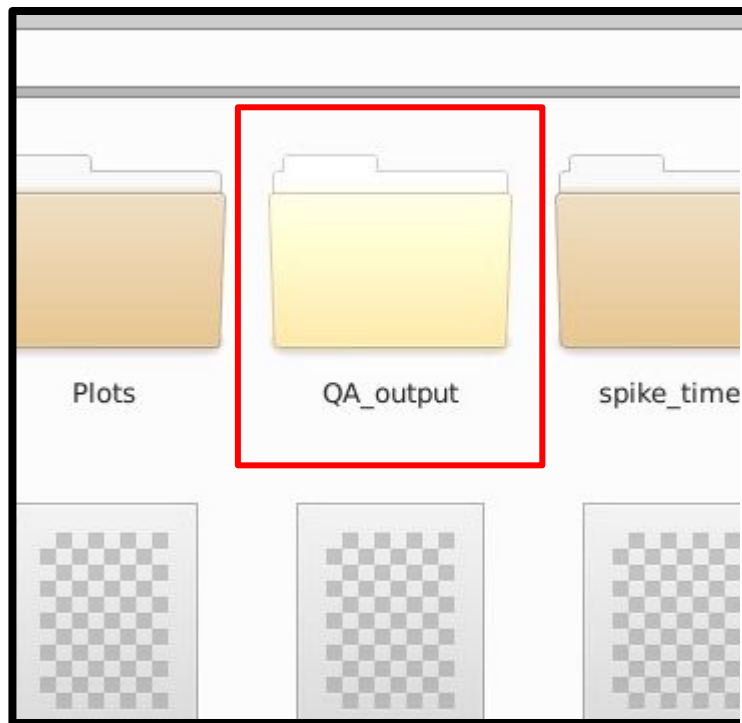
WPS Office | post_drift_p_vals

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	A1			
	A	B	C	D
		trial_bin	Error	unit
1				
2		0	0.08872	0
3		1	0.09235	1
4		2	0.26528	2
5		3	0.68118	3
6		4	0.19955	4
7		5	0.39345	5
8		6	0.4933	6
9		7	0.91557	7
10		8	0.49441	8
11		9	0.0095	9
12		10	0.00247	10



Warnings file



Ephys_data submodule

- Data handling and processing
- Visualizing
 - Rasters
 - Firing rate grid plots

```
from utils.ephys_data.ephys_data import ephys_data

# Initialize with data directory

data = ephys_data(data_dir='/path/to/data')
```

Ephys_data submodule

Loading spikes	<code>data.get_spikes()</code>
Extracting LFPs, calculating STFT	<code>data.get_lfps()</code> <code>data.get_stft()</code>
Calculating firing rates + unit properties	<code>data.get_firing_rates()</code> <code>data.calc_palatability()</code>
Separating data by region	<code>data.get_region_units()</code> <code>region_spikes = data.return_region_spikes('region_name')</code> <code>region_firing = data.get_region_firing('region_name')</code> <code>region_lfps, region_names = data.return_region_lfps()</code>
Separating data by laser condition	<code>data.separate_laser_data()</code> <code># Access separated data</code> <code>on_spikes = data.on_spikes</code> <code>off_spikes = data.off_spikes</code> <code>on_firing = data.on_firing</code> <code>off_firing = data.off_firing</code>
Loading experimental + unit metadata	<code>data.get_info_dict()</code> <code>data.get_trial_info_frame()</code> <code>data.get_unit_descriptors()</code>

Housekeeping

- Please upload your code to katzlabbrandeis github
 - You can also have your repository forked (copied) to katzlabbrandeis
 - It DOESN'T have to be clean code...the repository can be kept private