

Data from: “***Classification of pseudocalcium visual responses from mouse retinal ganglion cells***”.

The dataset includes spike times of 9 different recordings of retina ganglion cells and *pseudocalcium traces after convolving spikes with OGB kernel*. Extracellular data is recorded with multielectrode array (Multi Channel Systems).

- visualization\_script: this code plots the clusters and generates following variables:

*data for different stimuli converted to pseudocalcium traces (processed data)*

Variable name	Dim1	Dim2	Dim3	Remark
condition	#cell			Cells after removing noisy data (653 of 892 cells were used for final clustering).
sidx	#cell			Indices of cells sorted by cluster numbers
With_sta	#cell			Indices of cells with significant STA
cluster_idx	#cell			Cluster numbers for data sorted by <i>sidx</i>
chirp_avg	#cell	Time sample		Median of chirp response. Normalized to max(abs())
chirp_time	time sample			Time base of chirp response
color_avg	#cell	Time sample		Median of color response. Normalized to max(abs())
color_time	time sample			Time base of chirp response
flash_avg	#cell	Time sample		Median of flash response. Normalized to max(abs())
flash_time	time sample			Time base of chirp response
bar_avg	#cell	Time sample		Average of bar response. Normalized to max(abs())
bar_time	time sample			Time base of moving bar response
bar_trials	#recording	#cell	#direction	Response of individual cells to average of closest bar and two neighboring bars for each direction.
SPK	Spike time	#trial	#cell	Spike times for all 892 cells
with_sta	#cell			Cells with a significant STA
e_STAs	#cell			STA of each cell with clusters
trace_norm	sample			Normalized OGB kernel
trace_norm_auc	sample			OGB kernel with area under the curve normalized to 1
ts_trace	time sample			Time base of OGB kernel
HT_dataname				Nested structures with hitting time of each moving bar stimulus for each channel
ds_list				Metadata for each recording including corresponding hitting time file

- DATA: includes the raw data of each recording. Spike times and trigger times of both visual and electrical stimulation.

*Variables in each recording file (raw data)*

<i>Variables name</i>	<i>Remarks</i>
<i>A1a</i>	Photodiode signal monitoring the global visual stimulation brightness. (used only for calibration and 'reality check').
<i>A2a</i>	TTL triggers of visual stimulation.
<i>A3a</i>	TTL triggers of electrical stimulation.
<i>adch_channel_unit</i>	Spike time of each unit. One channel can have more than one unit.
<i>trgss</i>	Triggers of visual stimulation sorted by name of stimulus

- HT\_'recordingname': This data contains geometrical information of MEAs for each recording. From this information, we compute the hitting times for the moving-bar stimuli. The moving bar stimulus includes 8 different directions and for each channel, we can estimate when the stimulus hits the given channel (electrode) of the MEA.

*Geometrical information for each MEA during recording*

<i>Variables name</i>	<i>Remarks</i>
<i>HT</i>	Hitting time tables of individual recordings, i.e. The time that the leading edge of the moving bar hits the electrode.
<i>xy_diff</i>	<p>the distance of each electrode to the center of MEA in um. These data are used to compute HT.</p> <ul style="list-style-type: none"> <li>• First row shows x coordinate</li> <li>• Second row shows y coordinate</li> </ul>

- Matlab\_results: this folder contains normal and OGB PSTHs:

<i>PSTH for each stimulus</i>	
<i>Variables name</i>	<i>Remarks</i>
<i>BG</i>	Spike times and average of normal and ogb PSTHs of each channel over trials for color stimulus. Normalized to max(abs())
<i>Flash</i>	Spike times and average of normal and ogb PSTHs of each channel over trials for flash stimulus. Normalized to max(abs())
<i>Chirp</i>	Spike times and average of normal and ogb PSTHs of each channel over trials for chirp stimulus. Normalized to max(abs())
<i>Moving bar</i>	Spike times for each cell and each location, and average of normal and ogb PSTHs of each channel over trials for moving bar stimulus. Normalized to max(abs())
<i>e_STA_'recordingname'</i>	Spike times and electrical STA of each channel