If using these data in a paper, please cite the original research paper (Stringer, Pachitariu et al 2018a), as well as the figshare dataset doi. These are two-photon calcium imaging recordings in visual cortex.

Recordings without visual stimuli (spont)

dbspont.mat
Database with the names of all sessions. This is the same in all data files. The “stimulus” field indicates whether the data was recorded in complete darkness (spont_black) or with a gray screen on (spont_gray).
spont_mname_date.mat (9 files)
Each file is a different session, with some mice being used in multiple sessions. All temporal variables have been re-sampled at the times of the acquisition of the center plane. This includes the calcium traces of neurons sampled at different times in different planes.
Fsp: a matrix of size number of neurons by number of timepoints of deconvolved fluorescence traces.
stat: single cell statistics of cell detection algorithm (Suite2p).
stat.redcell: (for some recordings) indicated whether the cell had tdtomato and was therefore an interneuron (GAD+).
stat.redprob: (for some recordings) contains the classifier’s probability that a cell has tdtomato (from 0 to 1).
med: estimated 3D position of cells in tissue.
beh.face.avgframe: average frame of the face ROI.
beh.face.motionMask: spatial masks of the SVDs (1000).
beh.face.motionSVD: temporal traces of the SVDs (1000), sampled at the times of the neural frames
beh.whisker: same as face SVDs but just for a small area around the whiskers.
beh.eye: same as eye SVDs but just for a small area around the whiskers.
beh.pupil.area: estimated area of pupil. This may be quite unreliable in darkness.
beh.pupil.com: estimated center of mass of pupil.
beh.pupil.runSpeed: estimated running speed on the air floating ball.

Recordings with 32 natural image stimuli and periods without visual stimuli (stimspont)

dbstimspont.mat (1 file): database with the names of all stimspont sessions.
stimspont_mname_date.mat (4 files):
Has all the fields of **spont_*** files, and also stimulus information. 32 natural images were presented.
stimtpt: times when a visual stimulus was on
stim.stimtimes: times of stimulus presentations (each cell contains the stim times relative to the imaging plane, a neuron's plane is in its stat.iplane)
stim.istim: stimulus identity (33 means blank stimulus – gray screen)
stim.resp: average stimulus response of each neuron (stim presentations x neurons), these are averaged over 3 time bins, and are aligned to the onset of the plane in which each neuron lives

Recordings with 32 drifting gratings presented (ori32)

dbori32.mat (1 file): database with the names of all stimspont sessions.
ori32_mname_date.mat (4 files):
Has the same stim structure as **stimspont_*** files, and
stim.params: the direction of the presented drifting grating, in degrees
stim.paramnames: parameter that is changing across gratings (in this case the orientation of the grating)