**Data and code used for making Extended Data Fig. 6**

**Folder: ExtDataFig6a-d**

Analysis

* ExtDataFig06\_Example\_AveSong.m: Code for plotting images for the example recordings in Extended Data Fig. 6a,c.
* TS\_Img.mat: Time stamps of calcium imaging.
* TS\_OptStimImg.mat: Timings of optogenetic stimulation during calcium imaging.
* ExtDataFig06\_AveSong.m: Code for plotting the population averaged ΔF/F for pulse and sine song around song-type in Extended Data Fig. 6b,d.

Data/Summary\_GENOTYPE

* EthogramComb.mat: File containing the time course of pulse/sine songs. Row: fly ID; Column: time bins at the resolution of microphone recording (1 kHz).
* EthogramCombImg.mat: Same as EthogramComb.mat but the time resolution of calcium imaging.
* F2d\_\*: Calcium imaging data (F for each voxel) for each experiment.
* StimComb.mat: Optogenetic stimulation strength for each trial.
* AveSongComb.mat: Average ΔF/F for pulse and sine song around song-type for each recording.

**Folder: ExtDataFig6fg**

Analysis

* ExtDataFig06\_AveImgBaseline.m: Code for plotting the baseline F images in Extended Data Fig. 6f,g.
* ExtDataFig06\_AveImgEachStim.m: Code for plotting the images for the difference in F between pre- and during-stimulation in Extended Data Fig. 6f,g.

Data/Summary\_GENOTYPE

* DataPixels\_\*: Files for defining the voxels where GCaMP signals were observed for each recording.
* F\_Baseline\_\*: Baseline fluorescent images for each recording.
* F\_Diff\_\*: Images for the difference in F between pre- and during-optogenetic stimulation.

**Folder: ExtDataFig6hi**

* DorsalVentral\_dPR1\_TN1A: Raw images and the images registered to a standard VNC. These images were used to generate Extended Data Fig. 6h,i.