Readme for “Data from: Neural dynamics underlying birdsong practice and performance” by Jonnathan Singh Alvarado

GENERAL INFORMATION

Supporting data for Singh Alvarado et al 2021

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DATA & FILE OVERVIEW

1. File List:

There are three major files:

1. IMAGING:

Features: Subset of parameters calculated across birds.

Context traces: the master\_lyt variable contains song-onset aligned activity for example song renditions in undirected and directed singing (col 1 and 2)

UD\_D: Example mean activity values (for Active trials or all trials) across undirected and directed singing.

Duration: Motif and syllable durations across birds.

Pairwise correlations: Distributions of correlations (medians per neuron, internalmedianCC) and song-aligned data (DATA variable)

Population participation: Fraction of active neurons in common between trials.

Neuron\_trace\_examples: Extracted activity (CNMF-E) from undirected concatenated trials for 6 birds. See CNMF-E wiki (<https://github.com/zhoupc/CNMF_E/wiki>) for variable structure.

1. MICRODIALYSIS:

Subfolders containing clonidine/sch/phentolamine extracted values

Variability metrics for each bird:

Col1: CV of undir

Col2: CV of dir

Col3: Intrasyllabic pitch var undir

Col4: Intrasyllabic pitch var dir

Col5: Cross-trial pitch variability (Hz) undir

Col6: Cross-trial pitch variability (Hz) dir

1. OPTOGENETICS:

Subfolders containing variability metrics and supporting metrics grouped by optogenetic approach, including directed singing metrics for each bird.

Variability metrics for each bird:

Col1: CV of undir

Col2: CV of dir

Col3: Intrasyllabic pitch var undir

Col4: Intrasyllabic pitch var dir

Col5: Cross-trial pitch variability (Hz) undir

Col6: Cross-trial pitch variability (Hz) dir

4Raw\_Example\_FOV:

Sample tiff stack of concatenated recordings for one day of undirected singing.

3. Additional related data collected that was not included in the current data package:

Immediate early gene experiments

HVC-related recordings

Subsets of sBG song-aligned recordings (being used for ongoing manuscripts)

Photometry data

Any additional data is available upon request.

Code for the variational autoencoder can be found in the github repo: <https://github.com/jackgoffinet/autoencoded-vocal-analysis>