**Guide to generating Figures in Sajad et al., 2021:**

**Generating Figures based on the shared data:**

The MatLab code **plotManuscriptFigures.m** contains a collection of MatLab functions used to plot the figures from the shared data.

**Data folder:**

**This file explains what is contained in each data file and how data is structured.**

SDFdata.mat

This file contains the spike-density function (SDF) for the three neuron classes described in the manuscript. Our neuron classification was based on an objective criteria, applied to all neurons that exhibited significant modulation around the time of stop-signal reaction time (SSRT). Our electrophysiology method (i.e., linear electrode arrays) yielded a relatively unbiased sampling of neural activity across cortical layers, including neurons with low firing rate. For the analyses throughout the manuscript we have only included the trials from the segment of the session during which spike-rate exhibited stationarity. Note: SSD1 bin often contains the most number of trials.

SDFdata.mat contains:

* NeuronID – which is a list of neuron tags (irrelevant here)
* SDFdata – which contains normalized spike-density function data for the 850 ms window shown in main text figures. SDF data is organized in
* timeAxis – contains the time units (-250 to 600) associated with each column in SDFdata

SDFsupplementaryData.mat

This file contains the spike-density function (SDF) for the three neuron classes described in the manuscript. It’s similar to SDFdata.mat except that the time-window is larger, matching the figures shown in the Supplementary section.

spk\_ModulationTiming\_v3.mat

This file contains the timing of the modulations based on the difference function (activity between canceled and latency-matched no-stop trials). The rows correspond to those in SDF data files. The modulation times are presented relative to two methods for SSRT calculation, Tone, and SSD.

reSSRT: relative to SSRT calculated using the weighted integration method.

reTONE: relative to the feedback tone

reSSD: relative to SSD

reSSRTbeest: relative to SSRT calculated using the BEESTS method (see Methods).

clusteringInputData.mat

This file contains the SDF input data for the consensus clustering algorithm developed by Lowe and Schall (2018). The file is organized in the format necessary for running the code.

SDFinputData - contains the SDF input data

SDFtimeRange – contains the time stamps corresponding to the SDF data

Windows4Clustering – contains the time windows surrounding alignment event (time 0 on SDFtimeRange) used for the clustering algorithm.

beh\_task\_Parameters\_completeSet.mat

this file contains the behavioral and task parameters that yielded the models tested in the study. It contains the following data:

paramVals – contains all the parameter values calculated for each SSD in each session.

This structure contains data corresponding to every session.

Within each session’s data the following fields exist:

* pNC: corresponds to p(NC | SSD)
* pError: corresponds to p(NCerror | SSD) / p(SS seen | SSD)
* SSD: stop-signal delay
* logSSD: SSD in log scale
* ToneTime: Time of the feedback tone relative to the stop-signal
* logToneTime: ToneTime in log scale
* hazardRate\_stopSignal\_absolute\_C: description in manuscript
* hazardRate\_stopSignal\_absolute\_SSseen: description in manuscript
* hazardRate\_stopSignal\_subjective\_C: description in manuscript
* hazardRate\_stopSignal\_subjective\_SSseen: description in manuscript
* hazardRate\_stopSignal\_dynamic\_C: description in manuscript
* hazardRate\_stopSignal\_dynamic\_SSseen: description in manuscript
* surprise\_stopSignal\_absolute\_C: description in manuscript
* surprise\_stopSignal\_absolute\_SSseen: description in manuscript
* surprise \_stopSignal\_subjective\_C: description in manuscript
* surprise \_stopSignal\_subjective\_SSseen: description in manuscript
* surprise \_stopSignal\_dynamic\_C: description in manuscript
* surprise\_stopSignal\_dynamic\_SSseen: description in manuscript

elements in each of the arrays above correspond to the SSD experienced in the task from the 1st SSD (1st element) to the last SSD (last element).

trls\_params – contains the parameter values corresponding to each canceled trial.

This structure contains data corresponding to every session.

Within each session’s data, a table exists that contains data across all canceled trials:

- trial number

- SSD bin (SSD1, SSD2, or SSD3)

- SSDListIdx – note some SSD bins may contain data from more than one SSDs. This is especially the case when SSDs were spaced temporally close to each other.

- additional columns correspond to each of the models listed above.

mean\_trls\_params – contains the parameters for each session, averaged across each SSD bin.

ERPdata.mat

This file contains the ERP traces for every session used for calculating the Grand ERPs:

ERPtrace\_perSession – contains the raw and baseline corrected ERPs on canceled and latency-matched no-stop trials aligned on SSRT (SSRTaligned), Stopsignal (STOPSIGNALaligned), and target (TARGETaligned). It also includes the ERP difference function (canceled – no-stop).

GrandERP – The data for plotting the Grant ERPs aligned on these task events, divided by monkey is shown.

timeAxis – contains the time relative to alignment event for each column in ERPtrace\_perSession and GrandERP.