AVF:

Protocol for isolating rise phases:

-load a wbstruct: wbstruct = load(‘wbstruct.mat’);

-first “clear options” then set options.dt = 1 / wbstruct.fps

-run HKwbtriggeralign, setting the first entry to the AVF name or number

HKwbtriggeralign([],[],wbstruct,[]);

-set trace = ans(:,1) to extract only this AVF trace

-run WBtracestateannotator(trace,options) (USE wbTraceStateAnnotator\_HK1615)

-turn off ‘nofalltoplateaus’ and on ‘forcenoplateaus’ so that green won’t show anymore

-settings per recording: usually alpha really low, like 1e-20 ; be strict with thresholds, these data should be as true as possible

-FOR ALL: alpha = 1e-20 and –thresh = 0

-TS20140715e (#1) AVFL – 0.19 vs. 0.23 - SMDVR

-trace is noisier than others

-+thresh = 0.175

-TS20140715f (#2) AVFL – 0.2 vs. 0.26 - SMDVL

-+thresh = 0.169

-TS20140905c (#3) AVFR – 0.14(upfreq) vs. 0.27(downfreq) – SMDVL

-+thresh = 0.159

-TS20140926d (#4) – SMDVR ; pref AVFR

AVFR – 0.19 vs. 0.28

-+thresh = 0.169

AVFL – 0.23 vs. 0.27

-+thresh = 0.166

-TS20141221b (#5) - SMDVR

AVFR – 0.15 vs. 0.25

-+thresh = 0.156

AVFL – 0.17 vs. 0.27

-+thresh = 0.161

-SAVE: stateParamStruct now contains your data, with thisTraceColoring = 2 as rises

-the WBtracestateannotator that definitely allows this is under my dropbox matlab functions as wbTraceStateAnnotator\_HK1615

-ignore any single data points in subsequent data, and average the rise phases to one time point – this is accomplished by the function findAVFrisetimes.

[timesec, timeframes]= findAVFrisetimes(thisTraceColoring, wbstruct.tv)

-to plot AVF rise times on top of AVA, and other neurons, use HKwbtriggeralign with your neurons of interest, followed by in the command line:

hold on;for thisrise = 1:size(AVFsinglerisetimes,1)

line([AVFsinglerisetimes(thisrise,1) AVFsinglerisetimes(thisrise,1)],[0 3],'Color','r')

hold on; end

-Use the function AVFanal to:

-segment AVA data into rise+high and fall+low (could simply use transitionTimes and transitionFallTimes) and count the number of AVF rises during each, divided by the length of each, to quantify that AVF is faster during forward phases (up and down outputs)

-justify that this single-rise-time-point analysis is good by quantifying AVF rise times vs. all other AVF times – it’s the fall/off times that differ between LOW and other phases, not the rise times

Protocol for AVF phase analysis:

-So far only for 1221b

-Do above procedure and then manually fix any errors in single rise times (manually insert and remove rows) – now saved as “AVFLfixedrisetimes” and “AVFRfixedrisetimes”