**NEV files**

Contingent adaptation:

129r163; 130l165; 131r119; 132l107; 132r114

Asynchronous adaptation:

129r164; 130l166; 131r118; 132l109; 132r115

Contingent rotated adaptation:

136l113; 136l156; 136r132

Asynchronous rotated adaptation:

136l155; 136r135

Normalization tuning, Contingent adaptation:

136l108; 136l121; 136r174

Normalization tuning, Contingent adaptation:

136l110; 136l123; 136r172

*Expo XML files accompany each nev file (those of the same experiment are identical)*

**Analysis and Figure code:**

Fig2\_CRFs – example contrast response functions.

Fig3\_MI – change in masking index as a function of mask contrast for adaptors matched to test and rotated 45° relative to test.

Fig4\_resp\_properties – change in masking as a function of F1/F0 ratio and as a function of orientation, and change in tuning gain as a function of orientation.

Fig5\_CRFs – rate matched normalization index.

Fig6\_model\_intuition – example contrast response functions from the model, and how the response products and normalization weights change after adaptation.

Fig7\_model – predicted change in masking index as a function of contrast and as a function of orientation preference.

Fig8\_MI\_recovery – compares masking index before adaptation, after adaptation, and ~15min later.

Contingent and asynchronous adaptation’s effect on normalization:

Xori\_resp – process raw data. Calculate responses to stim for each file.

RateMatch – calculates basic and response-matched suppression index for each file.

Combined\_xori – combines data across xori\_resp files and calculates metrics for paper. Resulting workspace will provide data for Figures 2, 3, 4A, 5 and 8.

Rotated contingent and asynchronous adaptation:

Same scipts as above with rotated nev/expo data loaded.

Modeling (Westrick model):

Westrick\_model – basic normalization model simulating x-ori experiment. Resulting workspace will provide data for Figure 6 and 7

Westrick\_rate\_adapt – normalization model with rate adapt term. Needed for Figure 7.

Tuning of Normalization signal:

normtune: processes raw data. Calculates responses to each stim for each file.

normtune\_combined: concatenates individual normtune files and calculates change in masking index as a function of orientation preference. Resulting workspace will provide data for Figure 4BC

General:

rvc\_fit\_NI – Normalization function to fit contrast responses. Similar to Freeman et al 2002.

rvc\_fit – same as above but imbeds contrasts used.

Max\_likelihood – fits descriptive function from Freeman et al 2002 using max likelihood method.

Rvc\_area\_final – calculates masking index over log contrast.

VM\_ML – fits a von mises to tuning data using max likelihood method.

Nev\_reader – reads spiking data to matlab.

ReadExpoXML – reads expo data to matlab.

getf1f2 – computes amplitude and f1 component of PSTHs.

Fill\_between – shades space between error bars

**Analysis other:**

Tuning\_fit – fits von mises to tuning data for individual files using LSQ or ML method.

AdaptPotency – Fits a decay fx to responses during prolonged (40s) adaptation.

Westrick\_param\_search\_aa3 – search through parameter space of the model.

Westrick\_param\_search\_aa3\_eval –plots result of previous script.

AdditionalAnalysis – metrics and figures not included in paper. Includes alternative masking index, rate-match SI rate-match control, ori selectivity vs change in masking/SI,

MI\_samplematched – calculates MI for matched and rotated adaptors using equal number of units in contingent and asynchronous adapt.

General:

vonmises – fits von mises to tuning data

Nev\_snr – calculates signal to noise ratio for each electrode channel

Adapt\_decayfx – simple exponential decay function fit to responses during prolonged adaptation

**Matlab data:**