Code Review

Want to find the spatial regions of response (want to fit Gabor filter)

Paul’s Orientation tuning:

1. Had 2 different processes for fitting the curves:
   1. One (5 – 6), required that the peaks be 180 degrees and also same width
   2. Did not have requirments for 180 and equal space, and just ended up fitting two different gaussian curves to the data

Paul’s Work on Receptive fields

1. STA is calculated from the previous four frames and the median over that
2. BE WARNED: the frames themselves that were shown to the mouse were passed through a filter and then down sampled (so that the 30 Hz video would match the 14.95 Hz imaging), so the images have a little information about the future in them
3. The SNR for the receptive field was calculated by squaring and averaging the inhibitory and excitatory regions, fitted a Gaussian noise to it and compared the variance of that group to the rest of the field
   1. Used SNR relationship of 3.5
4. Andreas wants me to find the spatial regions of response (want to fit Gabor filter)

Contacts and Synapses: (want to test whether Petter’s rule is valid or not)

1. Synapse Level selectivity:
   1. Not of exclusive or where:
      1. If axon goes through and contacts 2 different neurons and either doesn’t synapse both or does synapse both 🡪 good (+1)
      2. If axons goes through, contacts both, but only synapses onto one 🡪 bad (-1)
   2. Could do this for synapse level and
2. Positive selectivity: where expand the range of the contact to 200 um
3. For axon that only contact onto one

Nailing down synapses:

1. Want to create contact zone and then teel if there are 0 or 1>

Axon level analysis:

1. Look at the tuning difference of the synapses vs. tuning difference of contacts (but only for a threshold number of postsynaptic targets)
2. Maybe try across different compartment classes

Things to worry about:

1. Mapping distance from synapse to synapse along the branch
2. Want to find distance of synapse to soma (along the skeleton)