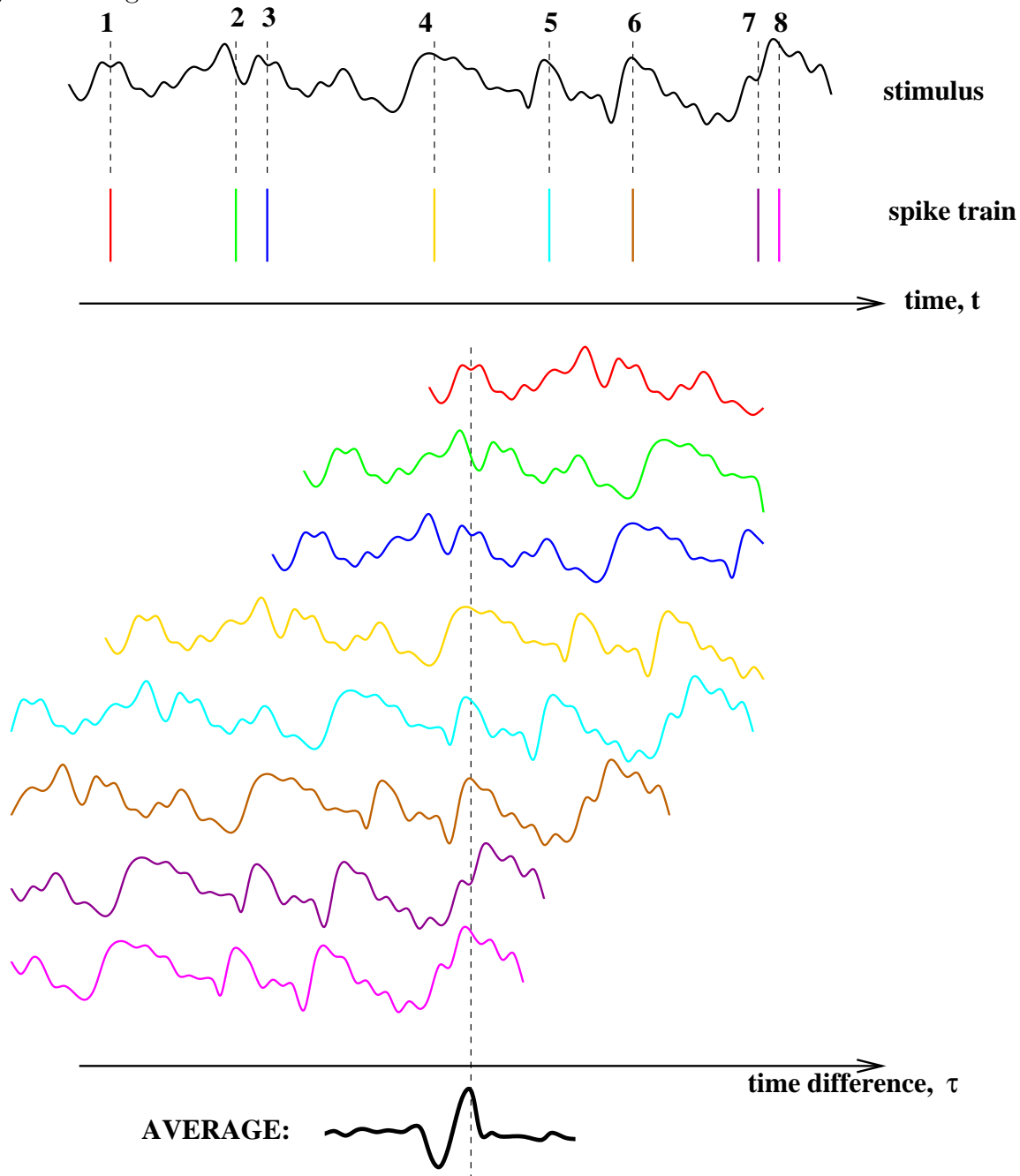


Neural Coding: Spike Triggered Average

- 1) Record stimulus over complete spike train.
- 2) Record all spike times.
- 3) For every spike, add the stimulus values surrounding the spike into the spike-triggered average array.

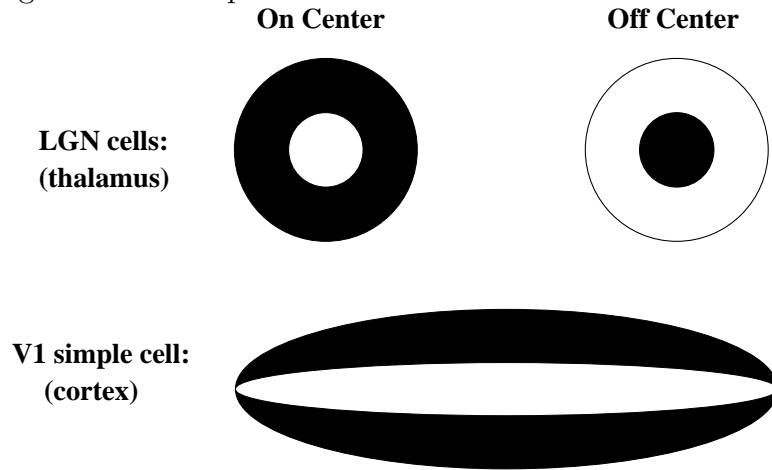
For example, a spike at 10.12s, the stimulus at 10.02s goes into the -0.10s bin, the stimulus at 10.03s goes into the -0.09s bin. Do this for a given time before and after the spike. Repeat for all spikes.

- 4) Once all the values are added into the array, divide by number of spikes to get spike-triggered average.



Spatial Receptive Fields in the Visual System

Hubel-Weisel model: basic feedforward model, suggests cortical receptive fields are formed by combining thalamic receptive fields.



Complex versus simple cells

Simple cell response can be understood in terms of positions of light or dark.

Complex cell response can be understood in terms of positions of boundaries between light and dark.

Sinusoidal gratings:

