

Video 1

- Draw example spike patterns and sketch the results of different methods to estimate the firing rate. Give examples of how changing the parameters of the firing rate estimates (e.g. bandwidth/bin-size) affects the estimates.

Video 2

- Find a paper on a higher visual cortical area (I'd suggest V4) online. What does the paper tell us about receptive fields in V4?

Video 3

- Write a short paragraph on the differences between rod and cone cells, using the material in the lectures and your own research.

Video 4

- Draw the simple-cell equivalent of week6-video4-slide6 (Text-fig 4 from Hubel and Wiesel, J Physiol, 1962)
- Draw a model of how complex cell selectivity might emerge from inputs from simple-cells.

Video 5

- In a Kohonen map, write down the value of C that keeps the weight vectors of unit length.
- What happens in a Kohonen map if we keep giving the same input?