Assignment 1:

Introduction

We dissected a cockroach leg and looked at baseline and stimulated action potentials to infer rate coding and adaptation. % This is exactly what we did

Questions

- What happens if you choose threshold too low or too high?

  Take a look at the figures showing baseline and stimulus response potentials (Figure x). If we consider a threshold too low, there will be too many , i.e. peaks that are not necessarily action potentials will be counted as spikes.

  If the threshold is too high, we could miss out on action potentials. (See Interactive Figure for the same)

- What happens to the firing rate as stimulus strength reduces?

  As the stimulus strength is reduced, the firing rate is expected to reduce. Considering our threshold, we see that <>, as indicated in Figure x.

  drawing

  - Why is it called rate coding? The relationship between the strength of the stimulus and the spikes of evoked action potentials is called rate coding. From the neuron's perspective, the strength of the stimulus is being translated to the frequency of spikes. In other words, the strength of the stimulus is being *coded* into the *rate* of spike firing. Hence, this relationship can be aptly called rate coding
  - Why do sensory systems need rate coding?

- Is the mean amplitude same across baseline and stimulus? Why?
- How does firing rate change with time?

- What do you understand about the sensory system from adaptation?