January 28, 2013

Simulations
Capture and reproduce screen shots to illustrate particular simulations that address the questions you are answering.

Introduction to lab exercise for this week

Key references for this week’s lab:
Kennedy and Takada, 1964b
Wine et al 1974
Larimer and Moore 2003
Armistead, 2008

Suction Electrode
Nerve 3 activity

Figure 1: Nerve 3 activity, with a threshold set to identify action potentials. The upper panel shows the raw data, while the lower panel displays the filtered signal.

Sorting nerve 3 spikes

This figure illustrates the spikes with 4 distinct energy thresholds. The distinct levels are labeled with 1-4. Note that these labels will not appear in your window. This is the behavior of the system in a similar situation without external stimulation. For details as to how to produce this graph, see the manual below.

Sorting nerve 3 spikes

http://crawdad.cornell.edu/gprime/apps.html

Selecting particular AP classes

[Description of the process for selecting specific action potential classes]
Cross section of nerve 3 showing 6 axons

Reflex activity

Example student data

Example student data

Reflex Modulation
Cobalt backfill of Nerve 3

Fluorescent backfill of Nerve 3

Crustacean Motor Neuron

Golgi Silver staining of vertebrate neurons

Ramon y Cajal

GFP DNA coated gold particles
Goals for lab this week:

- How many AP classes?
- Any patterns of activity in total or individual AP activity?
- Document activity in different sensory stimulation conditions.
- Activity change due to other reasons? (time, temperature)
- Is size of AP related to conduction time? (Will test this week after next week)

Make sure the computer is making sense. Check AP sizes on Oscilloscope too. Trigger off one AP and see what else shows up around it. Use the real time recording to verify different AP shapes.