

CIS6930 Intro to Computational Neuroscience Spring 2004
Home Work Assignment 1: Due Thursday 02/05/03 before class

1. (50 pts) Use the Hodgkin-Huxley equations to model an isopotential patch of a neuron. Inject a variety of current waveforms (alpha functions) and report the sub-threshold and supra-threshold voltage response of your model.
2. (50 pts) Use the passive membrane equations and build a compartmental model of a neuron comprising of a soma and a dendrite that branches in two. Inject currents at various locations on the two branches and show cases where the resultant voltage response at the soma is linear and cases where it is nonlinear.