

Project report and presentation.

April 13, 2009

## **Course: Introduction to Computer Modeling of Neuronal Systems**

### Description of Course Project.

For the project you will describe a computational model of some neuronal system. It should be a model that relates to the classes of models we studied, e.g. some HH-like model of single cell stimulus-response behavior or some firing rate model for a system-level phenomenon (like those in SDA). It could be an already published model, maybe even with a pre-existing computer code like one finds on Modeldb or you could develop your own model of some neuronal behavior. You should formulate one or more questions (in addition to something already published) to explore with the model. For example, you could vary some parameters in different ranges than published previously or could modify the model by adding new terms or by reducing the model to a simpler form.

You will use software (NEURON, Matlab, XPP) to run simulations of the model to address your question(s). You should carry out some test runs to confirm that the computer simulation reproduces some published behavior with the model or that simulation results accurately reproduce some known analytic solution.

You will develop a written project report. It should contain the following sections: Introduction, Methods, Results and Conclusions. The results of computer simulations should be presented graphically (with Figure captions that contain parameter values and description of the fig); your computer code should be included or clearly described. Your report should contain at least 2-4 references.

We will have a session (probably Monday, May 4, usual time) where you will present the results of your project, in a 10 min oral PowerPoint-style report. Your written report will be due on May 7.