CS F441 Introduction to Computational Neuroscience
Programming Assignment
Deadline: Monday, March 7 2020

Simulate a simple neuron that is assumed to be an isopotential sphere, by using the Hodgkin-Huxley equations.

(a) Inject square current pulses of various amplitudes and plot the corresponding sub-threshold and suprathreshold voltage responses.
(b) Experimentally estimate the *rheobase* of this simulated neuron.
(c) Experimentally plot the f-I curve for this neuron.

You may use any programming language of your choice, provided you do not use any library function for the simulation part of the code. You may of course use libraries or tools for the plotting. You could also use utilities such as *gnuplot* for plotting.

You need to submit a report with the above findings and also submit your code via a Google Form that will be provided. In your report, start by providing a brief description (<1 page) about how you went about the simulation, and how you estimated the quantities/curves that you were asked to. After this, present the plots/estimate that you were asked above. Be sure to label the axes properly and report units. Finally, include all the code you have written in the Appendix. Be sure to comment your code well. You will also need to submit the code separately, in a form in which it can be run.