

Summary of example:

The data file has one trace, which is 1000 ms long and the sampling frequency was 40kHz.

The data file also contains the time and was obtained from the corresponding model by using an IClamp (connected to the middle (0.5) of the soma) with the following parameters:

stim.del=200

stim.dur=500

stim.amp=0.3

The following model parameters were set (the others are default):

gnabar_hh=0.1

gkbar_hh=0.03

gl_hh=0.0001

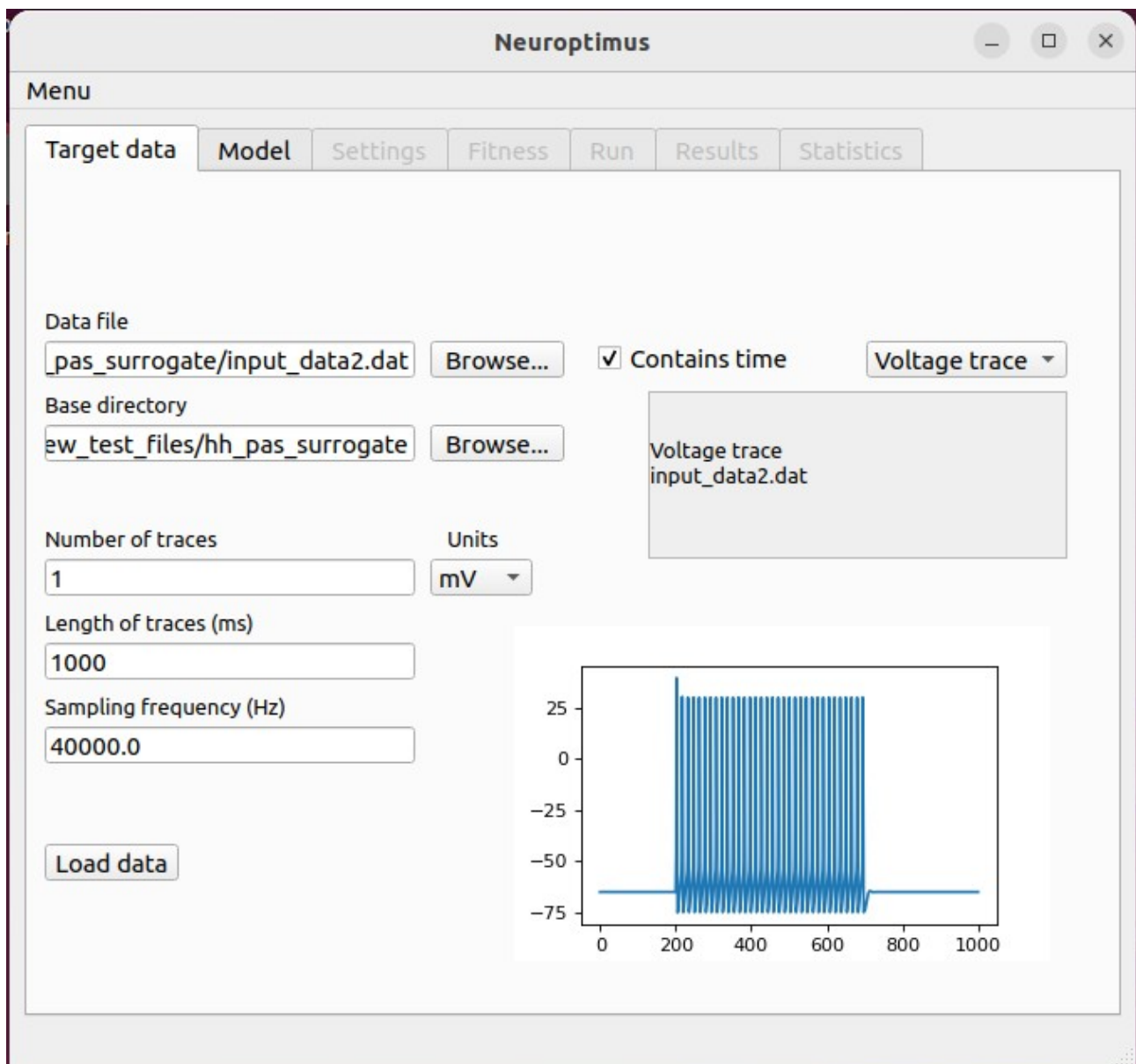
input file: "input_data2.dat"

model: hh_pas.hoc

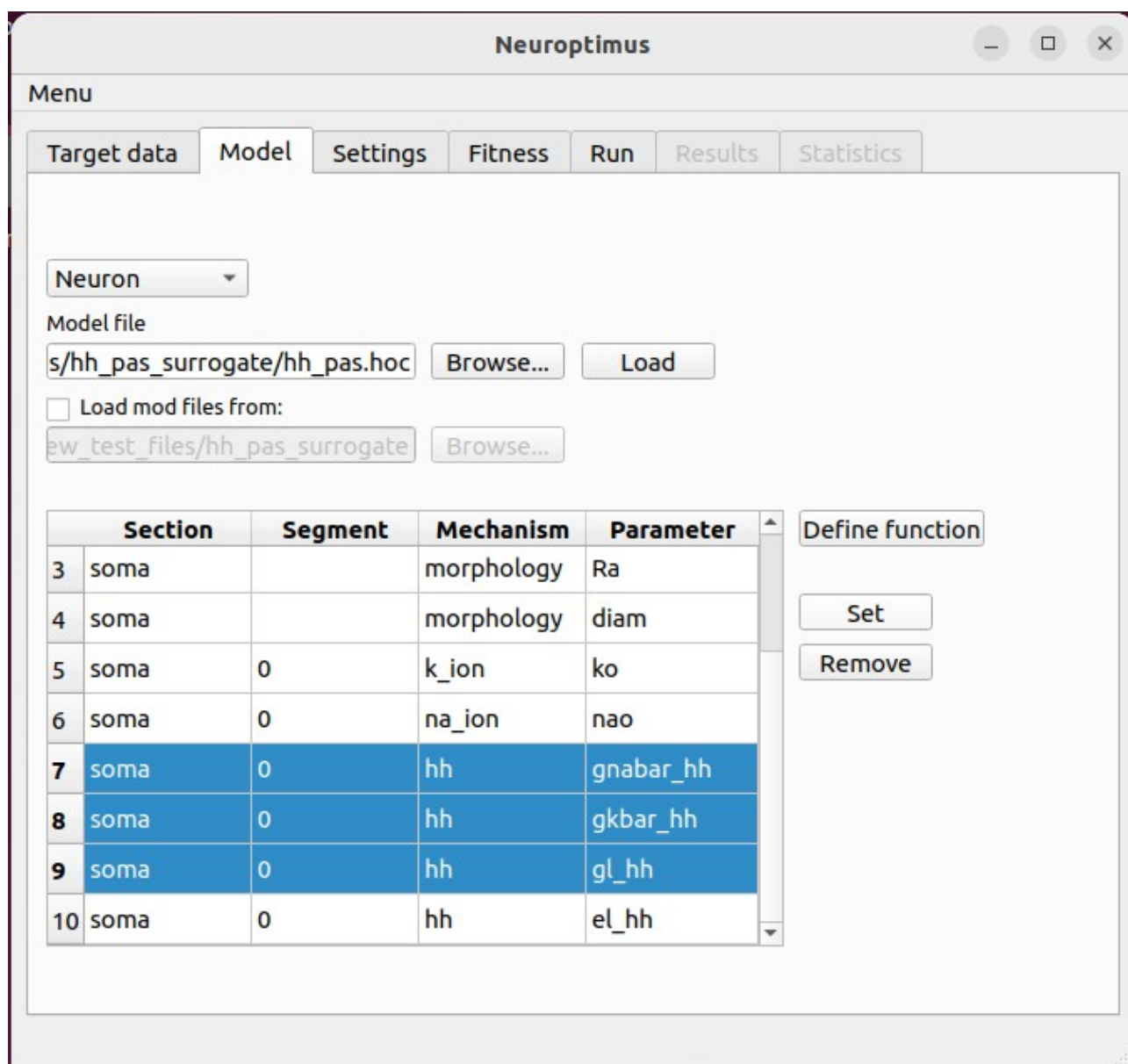
Step-by-step instructions to run the example from the Optimizer GUI:

Run „python3 optimizer.py -g” to start the GUI

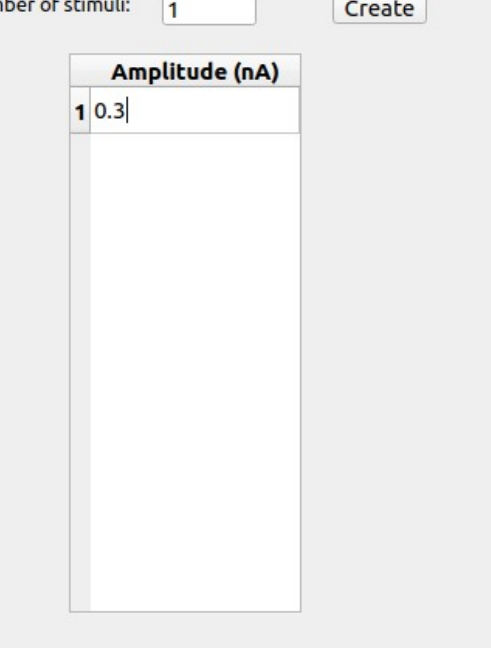
At 'Data File' load the target data, at 'Base Directory' choose the directory where you want to save the results. Fill out all the cells and press 'Load trace'. Go on by pressing the Model Tab.



Browse to the model file and load the model. To select a parameter click first on the parameter, then press 'Set'. Repeat it to select a new parameter.



Go on by pressing the Settings Tab.



The screenshot shows a window titled "neuroptimus.py" with standard macOS window controls. Below the title bar, there is a label "Number of stimuli:" followed by a text input field containing the number "1" and a "Create" button. Below this is a table with the heading "Amplitude (nA)". The table has one row with the index "1" and the value "0.3". At the bottom of the window is an "Accept" button.

Amplitude (nA)	
1	0.3

Fill in all the cells. Press 'Amplitude(s)' to open the 'Set Amplitude(s)' window.

Go on by pressing the Fitness Tab.

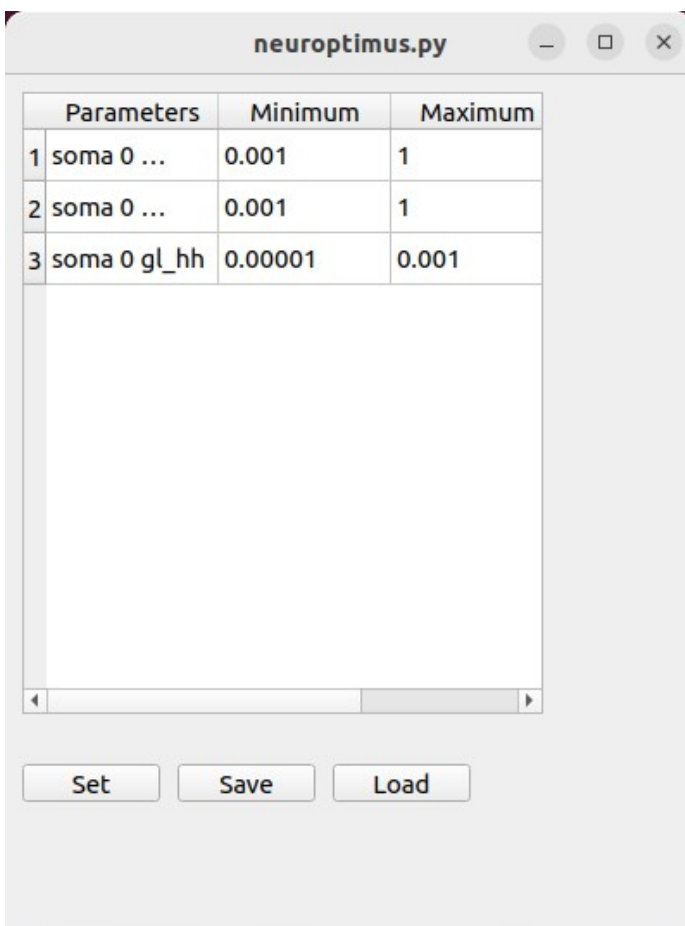
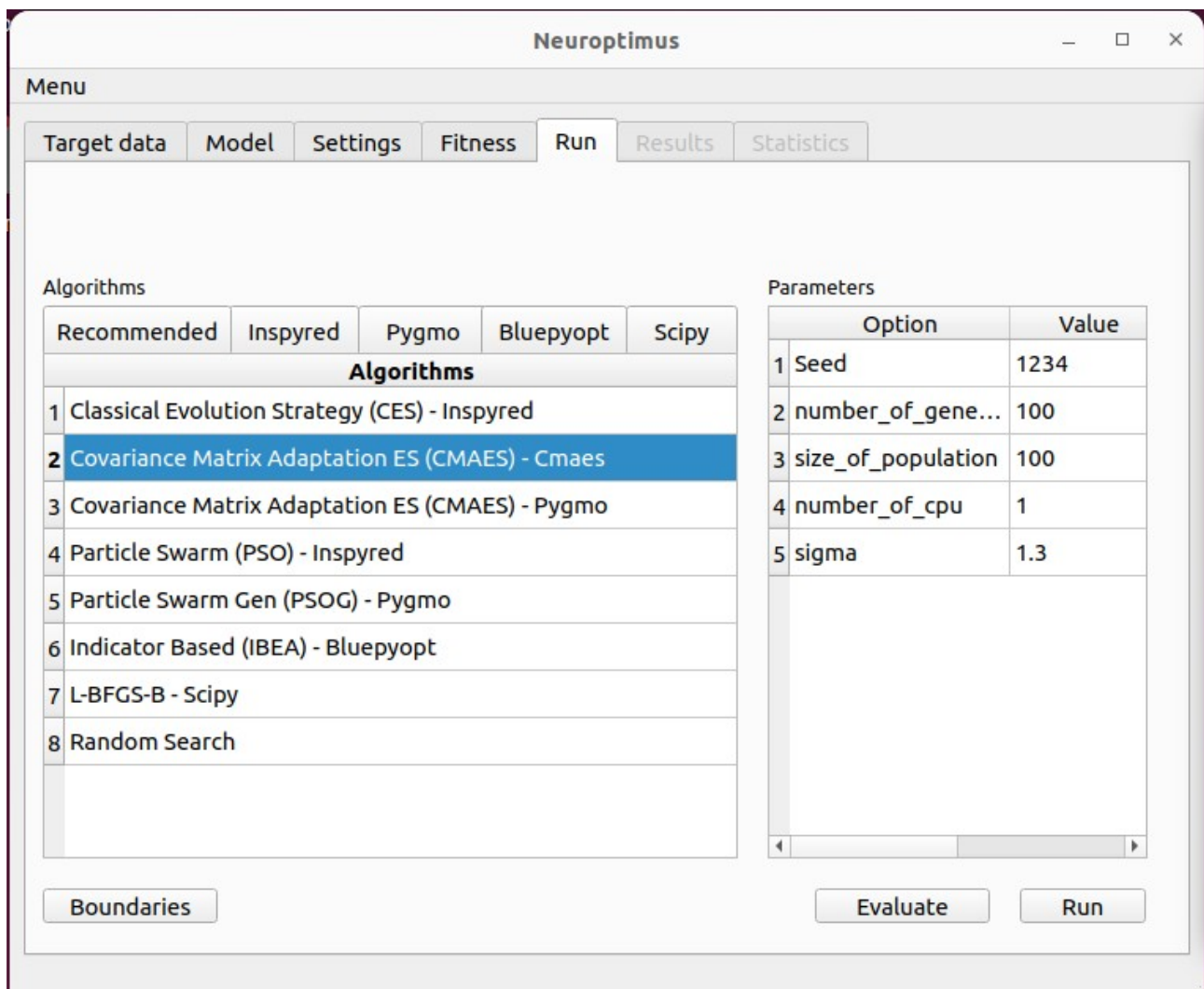
The screenshot shows the Neuroptimus software window. The 'Fitness' tab is selected in the 'Menu' bar. A 'Normalize' button is located above a table of fitness functions and weights. To the right of the table are input fields for 'Spike detection tresh. (mV)' and 'Spike window (ms)'.

	Fitness functions	Weights
1	MSE	0
2	MSE (excl. spikes)	0.25
3	Spike count	0
4	Spike count (stim.)	0.25
5	ISI differences	0
6	Latency to 1st spike	0
7	AP amplitude	0.25
8	AHP depth	0.25
9	AP width	0
10	Derivative difference	0

Spike detection tresh. (mV)
0.0

Spike window (ms)
1.0

Choose fitness function(s), and define their weights. Go on by pressing the Run Tab.



Select an algorithm, and press the 'Boundaries' button to define the boundaries of the parameters to be optimized:

Press 'Set'.

Start the optimization pressing the 'Run' button.