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

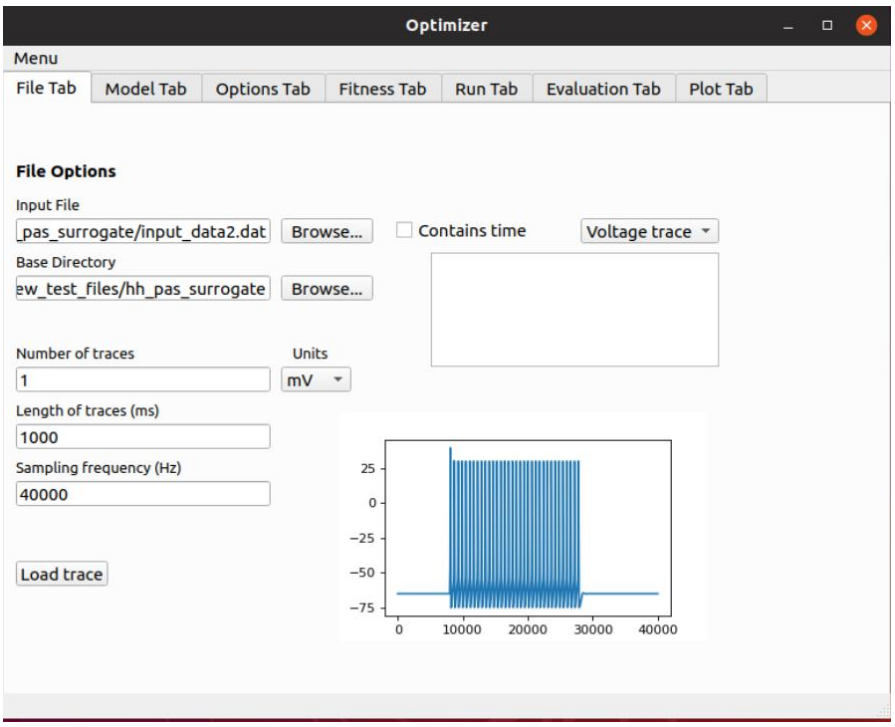
input file: "input_data2.dat"

model: hh_pas.hoc

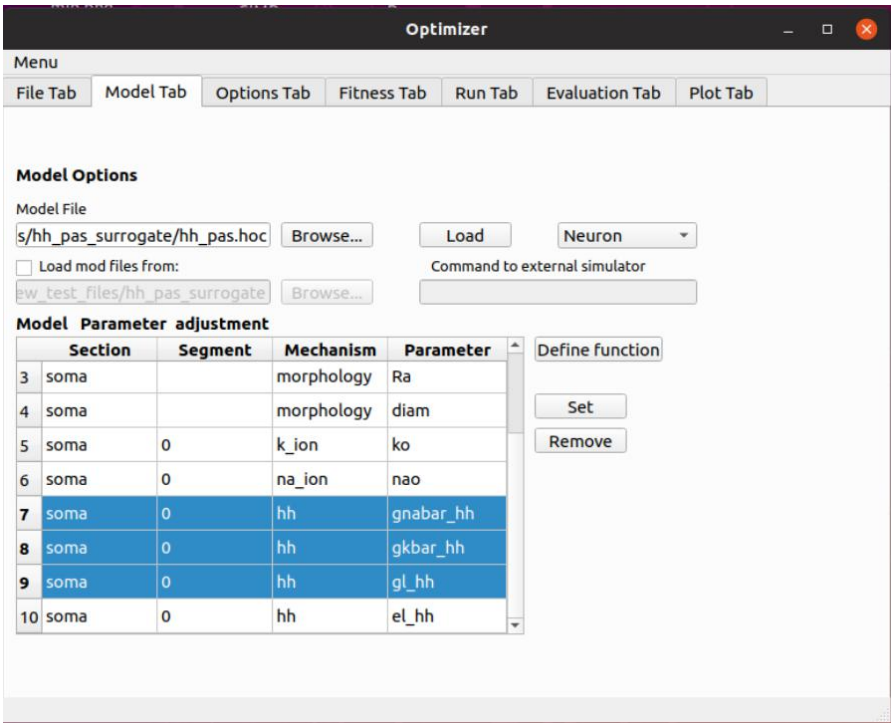
Step-by-step instructions to run the example from the Optimizer GUI:

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

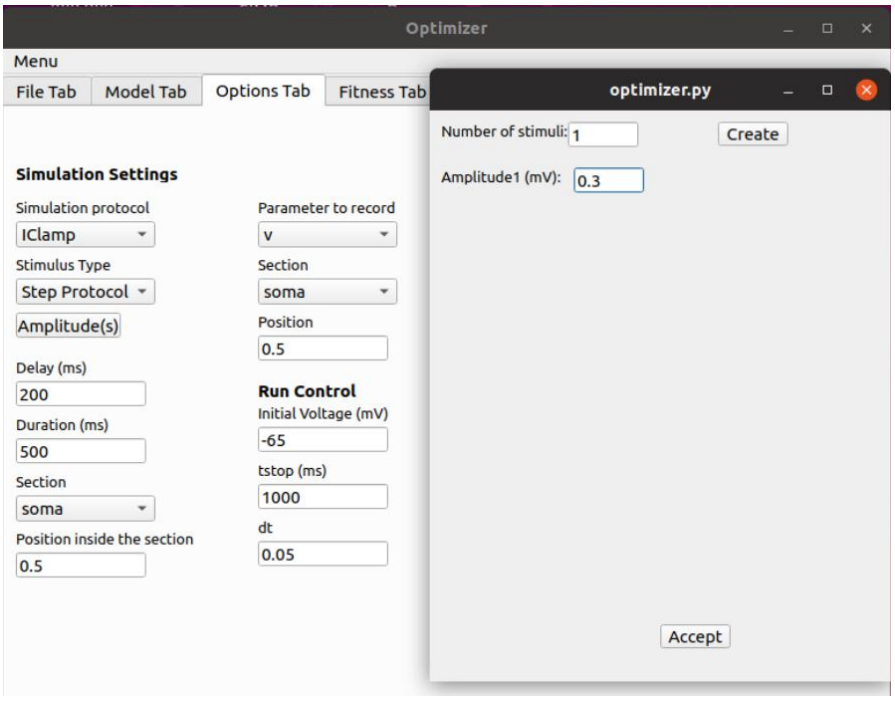
At 'Input File' load the target data, at 'Base Directory' choose the directory where you want to save the results. Fill out all the cells and press 'Load trace'. Go on by pressing the Model Tab.


Optimizer
Menu
File Tab
Model Tab
Options Tab
Fitness Tab
Run Tab
Evaluation Tab
Plot Tab
File Options
Input File
_pas_surrogate/input_data2.dat
Browse...
Contains time
Voltage trace
Base Directory
ew_test_files/hh_pas_surrogate
Browse...
Number of traces
1
Units
mV
Length of traces (ms)
1000
Sampling frequency (Hz)
40000
Load trace
25
0
−25
−50
−75
0
10000
20000
30000
40000

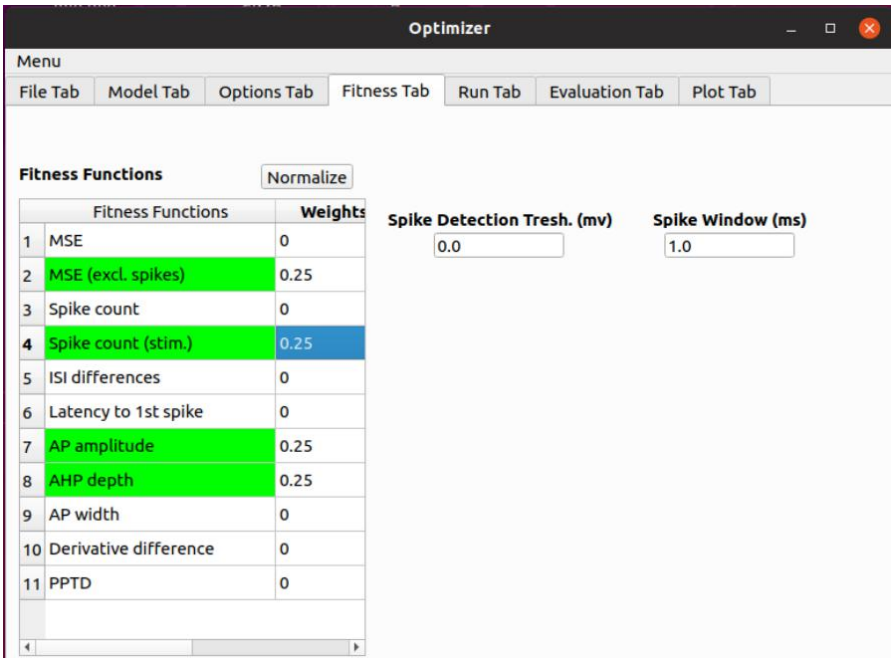
Browse to the model file and load the model. To select a parameter click first on the parameter, then press ’Set’. Repeat it to select a new parameter.



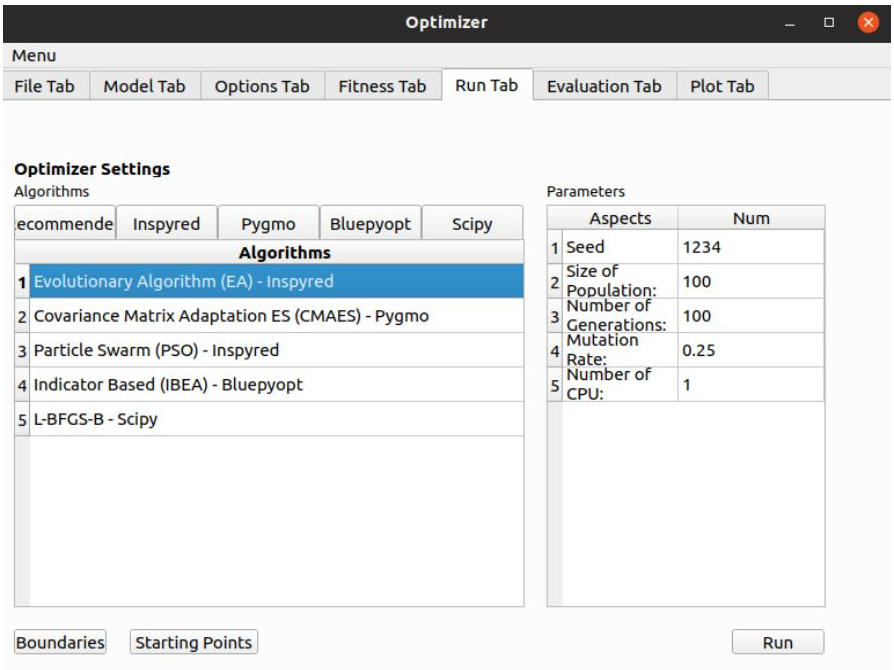
Go on by pressing the Options Tab.



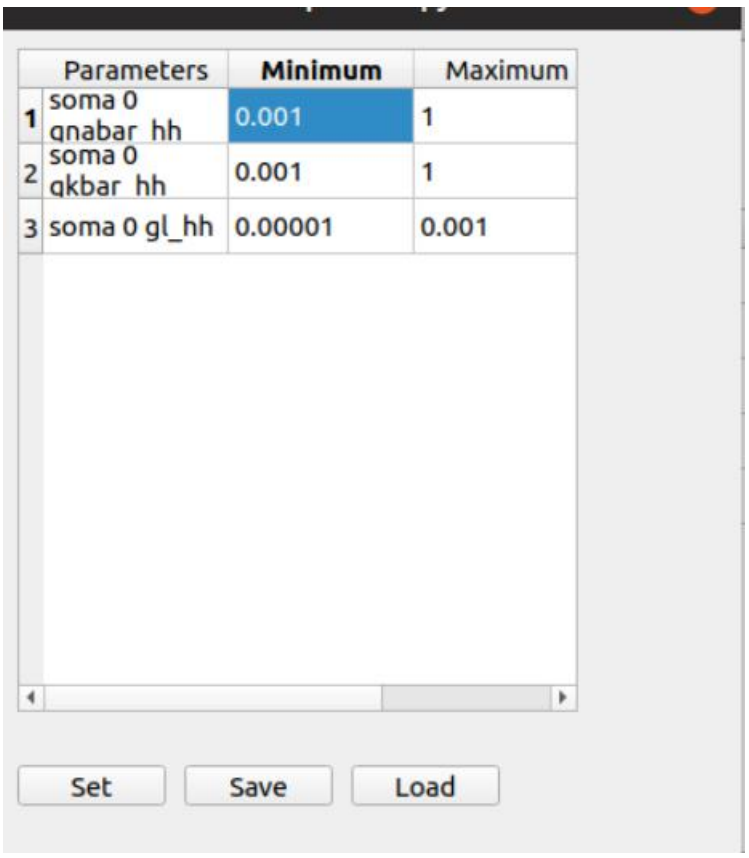
Fill in all the cells. Press ’Amplitude(s)’ to open the ’Set Amplitude(s) window. Go on by pressing the Fitness Tab.



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.