

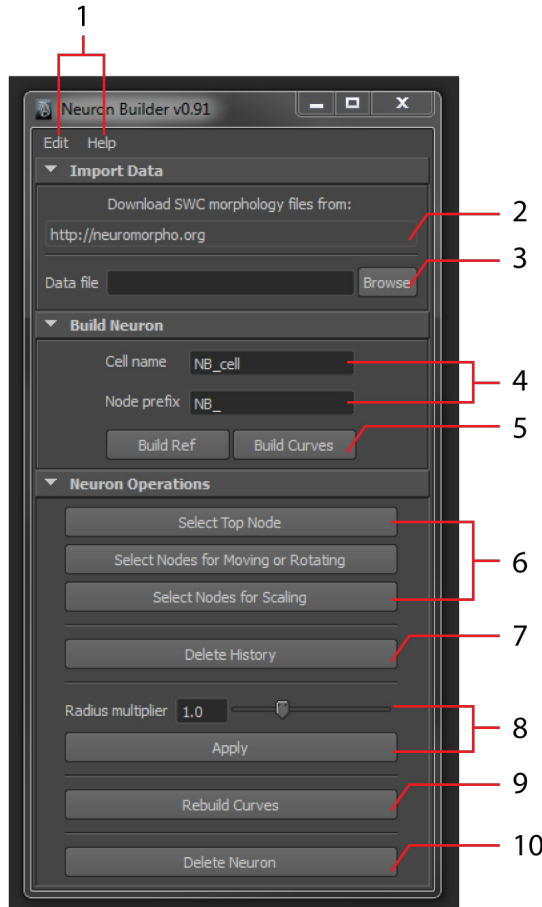
Neuron Builder v0.95 Documentation



Neuron Builder v0.95 by Stuart Jantzen is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 Unported License

This utility is currently in a beta form. It has been tested for Maya 2016.5 on Windows only. Using the tool on the Mac platform may result in a slightly odd GUI (which is not robustly designed). Please direct comments, bug reports and feedback to stuart@biocinematics.com.

To use the script, simply place the MEL file in one of your scripts folders, (e.g. Documents\maya\2016-x64\scripts). It should run if you type NeuronBuilder into the MEL command line area at the bottom of the UI. Google “using MEL scripts” if you run into problems, or send me an email.



1) Edit: Reset the name fields to default here. Help: Links to documentation (this stuff) and the author's website.

2) Go to neuromorpho.org to browse neuron morphology data and download the required .swc files. These are the Morphology File (Standardized) text files.

3) Enter the path and filename of your chosen .swc file or browse to select the file.

4) Give the top level node a name and give each node a prefix. The script should handle appending and incrementing numbers to prevent conflicts with existing names, but try to make these unique in your Maya file.

5) There are two ways to build a neuron. You can build a reference neuron (Build Ref) which creates small curve segments and short extruded NURBS cylinders with proper radii. This is not so useful to build geometry with, but it provides a correctly proportioned 3D structure. The other option (Build Curves) will only create curves, but they will be continuous where possible (curves cannot branch in Maya). This is more useful for extruding geometry along to create a unified mesh.

All Neuron Operations work on the most recently created neuron, unless the link to the neuron somehow gets cleared (e.g. closing and reopening the file)

6) These buttons will select the proper high level nodes to prevent double transforms when construction history is on, particularly in Ref mode. Select Top Node is just a slightly convenient button with little real utility.

7) Delete history on the neuron. After history is deleted, the buttons in (6) will not perform as expected (depending on what you are expecting).

8) The radius multiplier deviates from the existing radius data. It is meant to allow the user to beef up or slim down the neural projections. Slide the slider and hit apply. (Only works in Ref mode)

9) Rebuild Curves will create degree 3 curves out of the existing paths, keeping the end points and the number of spans. Results in potentially smoother geometry when extruding. (Only works in Curves mode)

10) Delete neuron will delete the top level node and all children of the most recently created neuron.

Posing neurons:

After neurons have been built, because of the parenting structure of the paths and the pivot points, you may select any of the paths and use the rotate manipulator to pose the projections of the neuron. This is especially useful because the morphology data is often limited essentially to two dimensions. (Works in both modes)