libNeuroML - NeuroML meets Python

Mike Vella
Department of Physiology, Development and Neuroscience, University of Cambridge, Cambridge, UK
What is NeuroML and why should I care?

**NeuroML**: An XML-based Model description language that aims to provide a common data format for defining and exchanging models.

**Important**: The focus of NeuroML is on models which are based on the biophysical and anatomical properties of real neurons.
What does libNeuroML do?

1. *Primarily*: A way to create, access and manipulate NeuroML from within Python.

2. *Secondarily*: An object model with a 1:1 mapping with the NeuroML schema
Example: A single compartment

Python:
```python
import neuroml

p = neuroml.Point3DWithDiam(x=0,y=0,z=0,diameter=50)
d = neuroml.Point3DWithDiam(x=50,y=0,z=0,diameter=50)
soma = neuroml.Segment(proximal=p, distal=d)
soma.name = 'Soma'
soma.id = 0
```

NeuroML:
```xml
<segment id="0" name="Soma">
  <proximal y="0.000000e+00" x="0.000000e+00" z="0.000000e+00" diameter="5.000000e+01"/>
  <distal y="0.000000e+00" x="5.000000e+01" z="0.000000e+00" diameter="5.000000e+01"/>
</segment>
```
Getting libNeuroML

Via github:

$ git clone git@github.com:NeuralEnsemble/libNeuroML.git

$ cd libNeuroML

$ python setup.py install

Support

Join the NeuroML mailing list:
neuroml-technology@lists.sourceforge.net.
libNeuroML and OpenWorm

An international open science project to simulate the roundworm C. elegans at the cellular level in silico.
libNeuroML and OpenWorm
libNeuroML and OpenWorm