BBP Model Portability With NEURON and Arbor

22nd Feb 2021

Summary of cnrn-arb-cell

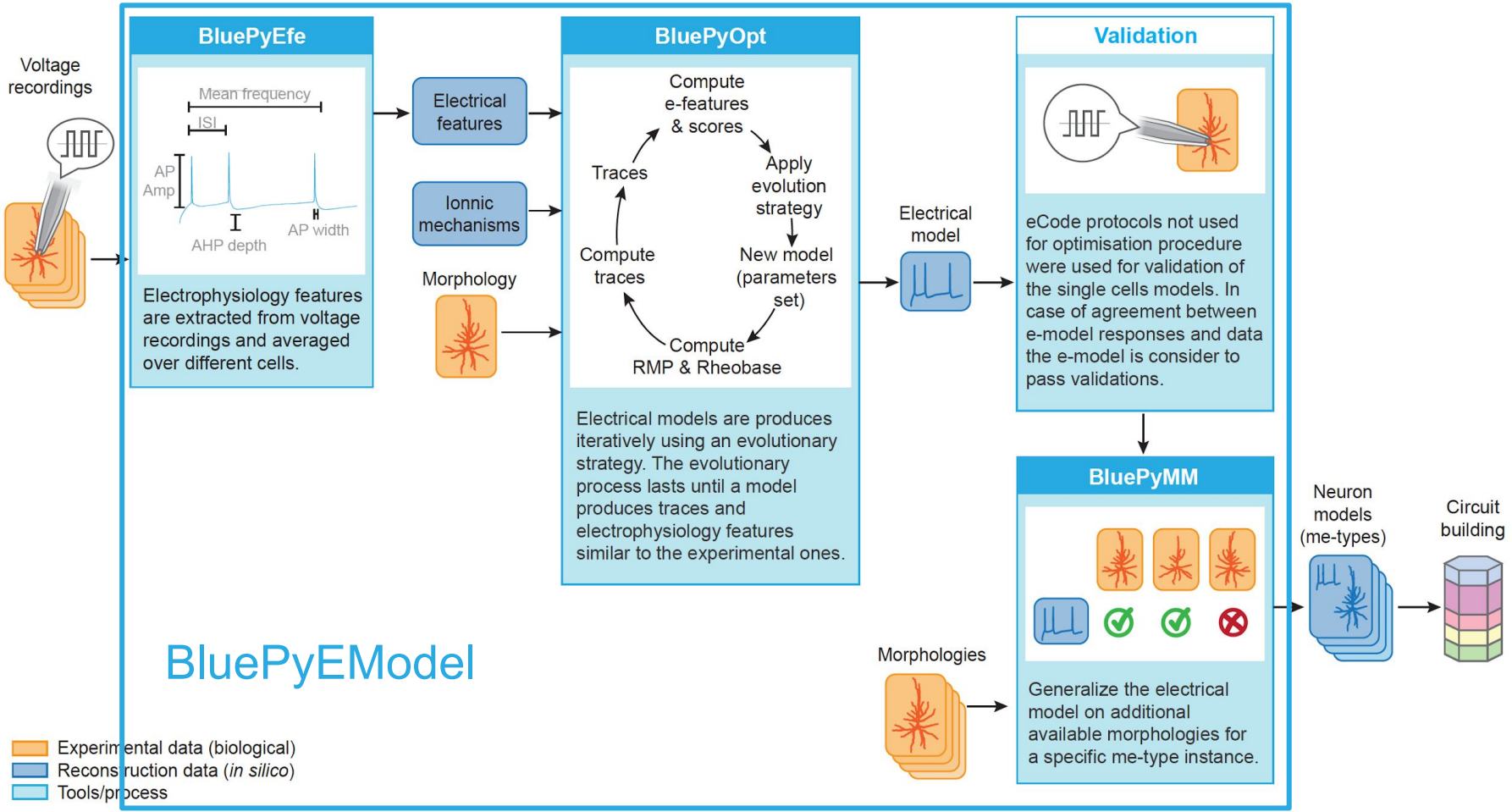
- Repository : https://github.com/bcumming/cnrn-arb-cell
- Goals
  - Publication? No
  - Flat descriptions of BBP models -> Arbor so we can compare and test Arbor/CoreNeuron/NEURON.
- Current formats from NMC portal
  - MOD files
  - HOC files
  - Morphologies
- Proposed format in cnrn-arb-cell
  - A proof of concept that a common flat format can be defined: open do defining a different format!

Arbor file formats : Current Status and Future Roadmap

- Work on going on an internal file format
  - Describe a single cell
- NeuroML cell descriptions
  - Supported
  - No support for network or dynamics descriptions.
- Native support for Neurolucida asc files
  - Currently under implementation (cribbing from examples in BlueBrain/Morphio project)
- NeuroML-lite collaboration has started
  - Generic networks: early days.
- SONATA
  - We have SGA2 SONATA wrapper: need progress on the “single cell problem”

BBP file formats : Current Status and Future Roadmap

Summary of E-Model building at BBP



BBP file formats : Current Status and Future Roadmap

- Pre-SONATA : neurolucida (asc), emodels.hoc, mvd, nrn.h5, custom reporting (out.dat, .bbp)

- SONATA Convergence - focus on cell placement (nodes.h5), connectivity (edges.h5), targets (nodesets), reports (h5)
  - Are arbitrary descriptions (.XML/.hoc/etc) allowed?

- Going forward

Work in OpenWorm Project?

Convergence towards common / portable format?

Discussion

- Publication?
  - Call at Frontiers: “Neuroscience, Computing, Performance, and Benchmarks: Why It Matters to Neuroscience How Fast We Can Compute”
  - Other journals?