Resource Summary Report

Generated by dkNET on May 18, 2025

NeuroML

RRID:SCR_003083
Type: Tool

Proper Citation

NeuroML (RRID:SCR_003083)

Resource Information

URL: http://www.neuroml.org/

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Description: A XML-based description language that provides a common data format for defining and exchanging descriptions of neuronal cell and network models. It facilitates the exchange of complex neural models, allows for greater transparency and accessibility of models, enhances interoperability between simulators and other tools, and supports the development of new software and databases. Exchange of network models will aid the investigation of structure-function relationships in neuroscience including theoretical studies relating connectivity patterns to normal and neurodegenerative network states. NeuroML is a free and open community effort developed with input from many contributors. They will need your help as the standards and tools continue to evolve.

Abbreviations: NeuroML

Synonyms: Neuro-Markup Language

Resource Type: interchange format, narrative resource, markup language, data or information resource, standard specification

Keywords: cell, network, neuron, model, computation tool, neuronal cell, network model

Funding:

Availability: Free, The community can contribute to this resource

Resource Name: NeuroML

Resource ID: SCR_003083

Alternate IDs: nif-0000-00542

Record Creation Time: 20220129T080217+0000

Record Last Update: 20250517T055558+0000

Ratings and Alerts

No rating or validation information has been found for NeuroML.

No alerts have been found for NeuroML.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 32 mentions in open access literature.

Listed below are recent publications. The full list is available at dkNET.

Dura-Bernal S, et al. (2023) Multiscale model of primary motor cortex circuits predicts in vivo cell-type-specific, behavioral state-dependent dynamics. Cell reports, 42(6), 112574.

Mehta K, et al. (2023) Online conversion of reconstructed neural morphologies into standardized SWC format. Nature communications, 14(1), 7429.

Birgiolas J, et al. (2023) NeuroML-DB: Sharing and characterizing data-driven neuroscience models described in NeuroML. PLoS computational biology, 19(3), e1010941.

Dura-Bernal S, et al. (2023) Data-driven multiscale model of macaque auditory thalamocortical circuits reproduces in vivo dynamics. Cell reports, 42(11), 113378.

Sánchez-Bellot C, et al. (2022) Two opposing hippocampus to prefrontal cortex pathways for the control of approach and avoidance behaviour. Nature communications, 13(1), 339.

Abrams MB, et al. (2022) A Standards Organization for Open and FAIR Neuroscience: the International Neuroinformatics Coordinating Facility. Neuroinformatics, 20(1), 25.

Gurnani H, et al. (2021) Multidimensional population activity in an electrically coupled inhibitory circuit in the cerebellar cortex. Neuron, 109(10), 1739.

Gleeson P, et al. (2019) Open Source Brain: A Collaborative Resource for Visualizing, Analyzing, Simulating, and Developing Standardized Models of Neurons and Circuits. Neuron, 103(3), 395.

Dura-Bernal S, et al. (2019) NetPyNE, a tool for data-driven multiscale modeling of brain circuits. eLife, 8.

Epelde G, et al. (2018) Web-Based Interfaces for Virtual C. elegans Neuron Model Definition, Network Configuration, Behavioral Experiment Definition and Experiment Results Visualization. Frontiers in neuroinformatics, 12, 80.

Cantarelli M, et al. (2018) Geppetto: a reusable modular open platform for exploring neuroscience data and models. Philosophical transactions of the Royal Society of London. Series B, Biological sciences, 373(1758).

Manninen T, et al. (2018) Challenges in Reproducibility, Replicability, and Comparability of Computational Models and Tools for Neuronal and Glial Networks, Cells, and Subcellular Structures. Frontiers in neuroinformatics, 12, 20.

Sarma GP, et al. (2018) OpenWorm: overview and recent advances in integrative biological simulation of Caenorhabditis elegans. Philosophical transactions of the Royal Society of London. Series B, Biological sciences, 373(1758).

Lindroos R, et al. (2018) Basal Ganglia Neuromodulation Over Multiple Temporal and Structural Scales-Simulations of Direct Pathway MSNs Investigate the Fast Onset of Dopaminergic Effects and Predict the Role of Kv4.2. Frontiers in neural circuits, 12, 3.

Gleeson P, et al. (2018) c302: a multiscale framework for modelling the nervous system of Caenorhabditis elegans. Philosophical transactions of the Royal Society of London. Series B, Biological sciences, 373(1758).

Tobin WF, et al. (2017) Wiring variations that enable and constrain neural computation in a sensory microcircuit. eLife, 6.

Masoli S, et al. (2017) Single Neuron Optimization as a Basis for Accurate Biophysical Modeling: The Case of Cerebellar Granule Cells. Frontiers in cellular neuroscience, 11, 71.

Ray S, et al. (2016) NSDF: Neuroscience Simulation Data Format. Neuroinformatics, 14(2), 147.

Evans BD, et al. (2016) PyRhO: A Multiscale Optogenetics Simulation Platform. Frontiers in neuroinformatics, 10, 8.

Breit M, et al. (2016) Anatomically Detailed and Large-Scale Simulations Studying Synapse Loss and Synchrony Using NeuroBox. Frontiers in neuroanatomy, 10, 8.