Resource Summary Report

Generated by SPARC SAWG on Aug 30, 2026

NetPyNE

RRID:SCR_014758
Type: Tool

Proper Citation

NetPyNE (RRID:SCR_014758)

Resource Information

URL: http://netpyne.org/

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Description: Software Python package for simulation and analysis of neuronal networks using the NEURON simulator.Used to facilitate development, parallel simulation, analysis, and optimization of biological neuronal networks.

Synonyms: Network development Python package for NEURON

Resource Type: data analysis software, data processing software, network analysis software, software application, software resource

Defining Citation: DOI:10.7554/eLife.44494.001

Keywords: Simulation, analysis, neuronal, network, NEURON, simulator, BRAIN Initiative

Funding: NIBIB EB022903

Availability: Free, Available for download, Freely available

Resource Name: NetPyNE

Resource ID: SCR_014758

Old URLs: http://www.neurosimlab.org/netpyne/overview.html

Record Creation Time: 20220129T080322+0000

Record Last Update: 20260829T182503+0000

Ratings and Alerts

No rating or validation information has been found for NetPyNE.

No alerts have been found for NetPyNE.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 27 mentions in open access literature.

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

Moreira JV, et al. (2025) Closed-Loop Connectivity Best Supports Angular Tuning and Sleep Dynamics in a Biophysical Thalamocortical Circuit Model. bioRxiv : the preprint server for biology.

Gupta S, et al. (2025) Biophysical modelling of intrinsic cardiac nervous system neuronal electrophysiology based on single-cell transcriptomics. The Journal of physiology, 603(7), 2119.

Doherty DW, et al. (2025) Decreased cellular excitability of pyramidal tract neurons in primary motor cortex leads to paradoxically increased network activity in simulated parkinsonian motor cortex. Research square.

Doherty DW, et al. (2025) Enhanced beta power emerges from simulated parkinsonian primary motor cortex. NPJ Parkinson's disease, 11(1), 230.

Doherty DW, et al. (2025) Self-organized and self-sustained ensemble activity patterns in simulation of mouse primary motor cortex. bioRxiv : the preprint server for biology.

Doherty DW, et al. (2025) Enhanced beta power emerges from simulated parkinsonian primary motor cortex. bioRxiv : the preprint server for biology.

Haynes VR, et al. (2024) Discovering optimal features for neuron-type identification from extracellular recordings. Frontiers in neuroinformatics, 18, 1303993.

Kang J, et al. (2024) Integration of partially observed multimodal and multiscale neural signals for estimating a neural circuit using dynamic causal modeling. PLoS computational biology, 20(12), e1012655.

Correa A, et al. (2024) Pathological cell assembly dynamics in a striatal MSN network model. Frontiers in computational neuroscience, 18, 1410335.

Johnsen KA, et al. (2024) Bridging model and experiment in systems neuroscience with Cleo: the Closed-Loop, Electrophysiology, and Optophysiology simulation testbed. bioRxiv : the preprint server for biology.

Griffith EY, et al. (2024) Mechanism of an Intrinsic Oscillation in Rat Geniculate Interneurons. bioRxiv : the preprint server for biology.

Gradwell MA, et al. (2024) Multimodal sensory control of motor performance by glycinergic interneurons of the mouse spinal cord deep dorsal horn. Neuron.

Sagalajev B, et al. (2024) Absence of paresthesia during high-rate spinal cord stimulation reveals importance of synchrony for sensations evoked by electrical stimulation. Neuron, 112(3), 404.

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

Ponzi A, et al. (2023) Theta-gamma phase amplitude coupling in a hippocampal CA1 microcircuit. PLoS computational biology, 19(3), e1010942.

Zhao Z, et al. (2023) Intensity- and frequency-specific effects of transcranial alternating current stimulation are explained by network dynamics. bioRxiv : the preprint server for biology.

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.

Zarei Eskikand P, et al. (2022) Computational simulations and Ca2+ imaging reveal that slow synaptic depolarizations (slow EPSPs) inhibit fast EPSP evoked action potentials for most of their time course in enteric neurons. PLoS computational biology, 18(6), e1009717.

Eriksson O, et al. (2022) Combining hypothesis- and data-driven neuroscience modeling in FAIR workflows. eLife, 11.

, et al. (2021) 30th Annual Computational Neuroscience Meeting: CNS*2021-Meeting Abstracts. Journal of computational neuroscience, 49(Suppl 1), 3.