Resource Summary Report

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Brian Simulator

RRID:SCR_002998
Type: Tool

Proper Citation

Brian Simulator (RRID:SCR_002998)

Resource Information

URL: http://briansimulator.org/

Proper Citation: Brian Simulator (RRID:SCR_002998)

Description: Software Python package for simulating spiking neural networks. Useful for neuroscientific modelling at systems level, and for teaching computational neuroscience. Intuitive and efficient neural simulator.

Abbreviations: Brian

Synonyms: Brian 2, Brian spiking neural network simulator, Brian2

Resource Type: simulation software, software resource, software application

Defining Citation: DOI:10.7554/eLife.47314, DOI:10.3389/neuro.01.026.2009, DOI:10.7554/eLife.47314

Keywords: simulation, spiking, neuron, brain, communication, modelling, computational neuroscience, python, spiking neuron, neural network

Funding: European Union ;
French National Research Agency ;
CNRS ;
Ecole Normale Superieure; Paris; France

Availability: Free, Available for download, Freely available

Resource Name: Brian Simulator

Resource ID: SCR_002998

Alternate IDs: nif-0000-30223

Alternate URLs: http://www.nitrc.org/projects/brian

License: CeCILL v2 license

Record Creation Time: 20220129T080216+0000

Record Last Update: 20260803T040331+0000

Ratings and Alerts

No rating or validation information has been found for Brian Simulator.

No alerts have been found for Brian Simulator.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 26 mentions in open access literature.

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

Jiang HJ, et al. (2025) Modeling neuron-astrocyte interactions in neural networks using distributed simulation. PLoS computational biology, 21(9), e1013503.

Someya M, et al. (2025) Distinct circuit motifs evaluate opposing innate values of odors. Cell.

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.

Burman RJ, et al. (2023) Active cortical networks promote shunting fast synaptic inhibition in vivo. Neuron, 111(22), 3531.

Perks KE, et al. (2022) Neural readout of a latency code in the active electrosensory system. Cell reports, 38(13), 110605.

Soldado-Magraner S, et al. (2022) Paradoxical self-sustained dynamics emerge from orchestrated excitatory and inhibitory homeostatic plasticity rules. Proceedings of the National Academy of Sciences of the United States of America, 119(43), e2200621119.

Morabito A, et al. (2022) Activity-dependent modulation of NMDA receptors by endogenous zinc shapes dendritic function in cortical neurons. Cell reports, 38(8), 110415.

Avramiea AE, et al. (2022) Long-Range Amplitude Coupling Is Optimized for Brain Networks That Function at Criticality. The Journal of neuroscience : the official journal of the Society for Neuroscience, 42(11), 2221.

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

Zachariou M, et al. (2021) Empirically constrained network models for contrast-dependent modulation of gamma rhythm in V1. NeuroImage, 229, 117748.

Avramiea AE, et al. (2020) Pre-stimulus phase and amplitude regulation of phase-locked responses are maximized in the critical state. eLife, 9.

de Souza BOF, et al. (2020) Pulvinar Modulates Contrast Responses in the Visual Cortex as a Function of Cortical Hierarchy. Cerebral cortex (New York, N.Y. : 1991), 30(3), 1068.

Zerlaut Y, et al. (2019) The Spectrum of Asynchronous Dynamics in Spiking Networks as a Model for the Diversity of Non-rhythmic Waking States in the Neocortex. Cell reports, 27(4), 1119.

Stimberg M, et al. (2019) Brian 2, an intuitive and efficient neural simulator. eLife, 8.

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.

Gutzen R, et al. (2018) Reproducible Neural Network Simulations: Statistical Methods for Model Validation on the Level of Network Activity Data. Frontiers in neuroinformatics, 12, 90.

van der Meer J, et al. (2018) Neuroscience: Modeling the Brain on Acid. Current biology : CB, 28(19), R1157.

O'Donnell C, et al. (2017) Beyond excitation/inhibition imbalance in multidimensional models of neural circuit changes in brain disorders. eLife, 6.

Danielson NB, et al. (2017) In Vivo Imaging of Dentate Gyrus Mossy Cells in Behaving Mice. Neuron, 93(3), 552.

Ai H, et al. (2017) Interneurons in the Honeybee Primary Auditory Center Responding to Waggle Dance-Like Vibration Pulses. The Journal of neuroscience : the official journal of the Society for Neuroscience, 37(44), 10624.