

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 application, software resource

Defining Citation: [DOI:10.7554/eLife.47314](https://doi.org/10.7554/eLife.47314), [DOI:10.3389/neuro.01.026.2009](https://doi.org/10.3389/neuro.01.026.2009), [DOI:10.7554/eLife.47314](https://doi.org/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 Supérieure; 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: 20260905T132456+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 29 mentions in open access literature.

Listed below are recent publications. The full list is available at [dkNET](#).

Ceballos C, et al. (2026) The Drosophila connectome reveals axo-axonic synapses on descending neurons. *iScience*, 29(5), 115624.

Christie KW, et al. (2026) A pair of interneurons that confer positive real-time valence to sweet sensation in Drosophila. *Current biology : CB*, 36(4), 846.

Crook N, et al. (2025) Synaptic facilitation and learning of multiplexed neural signals. *Frontiers in network physiology*, 5, 1664280.

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.

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.

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

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.

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.