Resource Summary Report

Generated by T1D on Aug 2, 2026

Nengo

RRID:SCR_008631
Type: Tool

Proper Citation

Nengo (RRID:SCR_008631)

Resource Information

URL: http://nengo.ca

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Description: A software package for modelling large networks of neurons (typically hundreds or thousands), using spiking point-neuron models. Nengo is designed around the neural engineering framework (NEF). This is a mathematical framework that describes how neurons interact to represent information, perform computations, and behave dynamically. This framework has been used to develop sophisticated models of spatial working memory, probabilistic sound localization, and lamprey locomotion, among others. Nengo makes it easy for beginners to develop models using the NEF. If you accept defaults for spiking models, tuning curves, firing rates, etc. then you can have a rough approximation of a complex system assembled and running in minutes. Nengo also makes it easy for experts to do advanced work with the NEF. The design carefully encapsulates separable aspects of model behaviour, so that it is highly customizable and easy to extend.

Synonyms: Nengo

Resource Type: simulation software, software resource, software application

Keywords: modeling, simulation, neuronal networks, spiking point model

Resource Name: Nengo

Resource ID: SCR_008631

Alternate IDs: nif-0000-32009

Record Creation Time: 20220129T080248+0000

Record Last Update: 20260803T040528+0000

Ratings and Alerts

No rating or validation information has been found for Nengo.

No alerts have been found for Nengo.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 12 mentions in open access literature.

Listed below are recent publications. The full list is available at T1D .

Pedersen JE, et al. (2024) Neuromorphic intermediate representation: A unified instruction set for interoperable brain-inspired computing. Nature communications, 15(1), 8122.

Borst JP, et al. (2023) A whole-task brain model of associative recognition that accounts for human behavior and neuroimaging data. PLoS computational biology, 19(9), e1011427.

Stille CM, et al. (2020) Modeling the Mental Lexicon as Part of Long-Term and Working Memory and Simulating Lexical Access in a Naming Task Including Semantic and Phonological Cues. Frontiers in psychology, 11, 1594.

Tiotto TF, et al. (2020) Learning to Approximate Functions Using Nb-Doped SrTiO3 Memristors. Frontiers in neuroscience, 14, 627276.

Wärnberg E, et al. (2019) Perturbing low dimensional activity manifolds in spiking neuronal networks. PLoS computational biology, 15(5), e1007074.

Stille CM, et al. (2019) Natural Language Processing in Large-Scale Neural Models for Medical Screenings. Frontiers in robotics and AI, 6, 62.

Gilra A, et al. (2017) Predicting non-linear dynamics by stable local learning in a recurrent spiking neural network. eLife, 6.

Rasmussen D, et al. (2017) A neural model of hierarchical reinforcement learning. PloS one, 12(7), e0180234.

Eliasmith C, et al. (2014) Abstracts from the Twenty Third Annual Computational Neuroscience Meeting: CNS*2014, July 26-31, 2014, Québec City, Canada. BMC neuroscience, 15 Suppl 1(Suppl 1), A1.

Eliasmith C, et al. (2014) The use and abuse of large-scale brain models. Current opinion in neurobiology, 25, 1.

Orchard J, et al. (2013) Does the entorhinal cortex use the Fourier transform? Frontiers in computational neuroscience, 7, 179.

Stewart TC, et al. (2009) Python scripting in the nengo simulator. Frontiers in neuroinformatics, 3, 7.