Resource Summary Report

Generated by RRID on Apr 8, 2025

PyNN

RRID:SCR_002715
Type: Tool

Proper Citation

PyNN (RRID:SCR_002715)

Resource Information

URL: http://neuralensemble.org/PyNN/

Proper Citation: PyNN (RRID:SCR_002715)

Description: Software Python package for simulator-independent specification of neuronal network models. In other words, you can write the code for a model once, using the PyNN API, and then run it without modification on any simulator that PyNN supports (currently NEURON, NEST and PCSIM). The API has two parts, a low-level, procedural API (functions create(), connect(), set(), record(), record_v()), and a high-level, object-oriented API (classes Population and Projection, which have methods like set(), record(), setWeights(), etc.). The low-level API is good for small networks, and perhaps gives more flexibility. The high-level API is good for hiding the details and the book-keeping, and is intended to have a one-to-one mapping with FacetsML. The other thing that is required to write a model once and run it on multiple simulators is standard cell models. PyNN translates standard cell-model names and parameter names into simulator-specific names, e.g. standard model IF_curr_alpha is iaf_neuron in NEST and StandardIF in NEURON, while SpikeSourcePoisson is a poisson_generator in NEST and a NetStim in NEURON. Only a small number off cell models have been implemented so far.

Abbreviations: PyNN

Resource Type: software resource, software development tool, software application

Defining Citation: PMID:19194529

Keywords: python, software

Funding:

Availability: CeCILL license

Resource Name: PyNN

Resource ID: SCR_002715

Alternate IDs: nif-0000-23351

Alternate URLs: http://pynn.gforge.inria.fr/

Record Creation Time: 20220129T080215+0000

Record Last Update: 20250407T215331+0000

Ratings and Alerts

No rating or validation information has been found for PyNN.

No alerts have been found for PyNN.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 53 mentions in open access literature.

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

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.

Schoepe T, et al. (2024) Finding the gap: neuromorphic motion-vision in dense environments. Nature communications, 15(1), 817.

Robens M, et al. (2024) NoC simulation steered by NEST: McAERsim and a Noxim patch. Frontiers in neuroscience, 18, 1371103.

Herron DL, et al. (2023) Carers' experiences of caring for a friend or family member with dementia during the Covid-19 pandemic. Dementia (London, England), 22(3), 576.

Jones A, et al. (2023) Bridging Neuroscience and Robotics: Spiking Neural Networks in Action. Sensors (Basel, Switzerland), 23(21).

van der Kamp J, et al. (2022) In their own words: A narrative analysis of illness memoirs written by men with prostate cancer. Sociology of health & illness, 44(1), 236.

Jakubik P, et al. (2022) Suspension of insurers' dividends as a response to the COVID-19 crisis: evidence from the European insurance equity market. The Geneva papers on risk and insurance. Issues and practice, 47(4), 785.

Kaiser J, et al. (2022) Emulating Dendritic Computing Paradigms on Analog Neuromorphic Hardware. Neuroscience, 489, 290.

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

Steffen L, et al. (2021) Benchmarking Highly Parallel Hardware for Spiking Neural Networks in Robotics. Frontiers in neuroscience, 15, 667011.

Pilla RM, et al. (2021) Global data set of long-term summertime vertical temperature profiles in 153 lakes. Scientific data, 8(1), 200.

Du Y, et al. (2021) The growth of plants and indigenous bacterial community were significantly affected by cadmium contamination in soil-plant system. AMB Express, 11(1), 103.

Bogdan PA, et al. (2021) Towards a Bio-Inspired Real-Time Neuromorphic Cerebellum. Frontiers in cellular neuroscience, 15, 622870.

Zaeem M, et al. (2021) Corn-Soybean Intercropping Improved the Nutritional Quality of Forage Cultivated on Podzols in Boreal Climate. Plants (Basel, Switzerland), 10(5).

Knight JC, et al. (2021) PyGeNN: A Python Library for GPU-Enhanced Neural Networks. Frontiers in neuroinformatics, 15, 659005.

Pei Z, et al. (2020) Design and characterization of novel oxyntomodulin derivatives with potent dual GLP-1/glucagon receptor activation and prolonged antidiabetic effects. Life sciences, 253, 117651.

Papasavvas CA, et al. (2020) Propagating Activity in Neocortex, Mediated by Gap Junctions and Modulated by Extracellular Potassium. eNeuro, 7(2).

D'Angelo G, et al. (2020) Event-Based Eccentric Motion Detection Exploiting Time Difference Encoding. Frontiers in neuroscience, 14, 451.

Fleming JE, et al. (2020) Self-Tuning Deep Brain Stimulation Controller for Suppression of Beta Oscillations: Analytical Derivation and Numerical Validation. Frontiers in neuroscience, 14, 639.

Tingley D, et al. (2020) Routing of Hippocampal Ripples to Subcortical Structures via the Lateral Septum. Neuron, 105(1), 138.