Resource Summary Report

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CARLsim: a GPU-accelerated SNN Simulator

RRID:SCR_014095
Type: Tool

Proper Citation

CARLsim: a GPU-accelerated SNN Simulator (RRID:SCR_014095)

Resource Information

URL: http://www.nitrc.org/projects/carlsim/

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Description: A GPU-accelerated library for simulating large-scale spiking neural network (SNN) models with a high degree of biological detail. CARLsim allows execution of networks of Izhikevich spiking neurons with realistic synaptic dynamics on both generic x86 CPUs and standard off-the-shelf GPUs. The simulator provides a PyNN-like programming interface in C/C++, which allows for details and parameters to be specified at the synapse, neuron, and network level.

Synonyms: CARLsim

Resource Type: simulation software, software application, software resource

Keywords: simulation software, snn model, gpu accelerated, library, izhikevich spiking neuron, graphics processor, stdp, data parallelism

Availability: Available for download

Resource Name: CARLsim: a GPU-accelerated SNN Simulator

Resource ID: SCR_014095

Alternate URLs: http://www.socsci.uci.edu/~jkrichma/CARLsim/

License: GNU General Public License

Record Creation Time: 20220129T080319+0000

Record Last Update: 20260905T133005+0000

Ratings and Alerts

No rating or validation information has been found for CARLsim: a GPU-accelerated SNN Simulator.

No alerts have been found for CARLsim: a GPU-accelerated SNN Simulator.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 4 mentions in open access literature.

Listed below are recent publications. The full list is available at PRECISE-TBI .

Hoang H, et al. (2025) Predictive reward-prediction errors of climbing fiber inputs integrate modular reinforcement learning with supervised learning. PLoS computational biology, 21(3), e1012899.

Wheeler DW, et al. (2024) Hippocampome.org v2.0: a knowledge base enabling data-driven spiking neural network simulations of rodent hippocampal circuits. bioRxiv : the preprint server for biology.

Wheeler DW, et al. (2024) Hippocampome.org 2.0 is a knowledge base enabling data-driven spiking neural network simulations of rodent hippocampal circuits. eLife, 12.

Carlson KD, et al. (2014) An efficient automated parameter tuning framework for spiking neural networks. Frontiers in neuroscience, 8, 10.