Resource Summary Report

Generated by RRID on Apr 9, 2025

Elephant

RRID:SCR_003833
Type: Tool

Proper Citation

Elephant (RRID:SCR_003833)

Resource Information

URL: https://python-elephant.org

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Description: The Electrophysiology Analysis Toolkit (Elephant) is a Python library that provides a modular framework for the analysis of experimental and simulated neuronal activity data, such as spike trains, local field potentials, and intracellular data. Elephant builds on the Neo data model to facilitate usability, to enable interoperability, and to support data from dozens of file formats and network simulation tools. Its analysis functions are continuously validated against reference implementations and reports in the literature. Visualizations of analysis results are made available via the Viziphant companion library. Elephant aims to act as a platform for sharing analysis methods across the field.

Abbreviations: Elephant, ElePhAnT

Synonyms: Elephant - Electrophysiology Analysis Toolkit, Electrophysiology Analysis Toolkit

Resource Type: software application, data analysis software, software toolkit, software resource, data processing software

Defining Citation: PMID:31449837

Keywords: electrophysiology, analysis, spike train, local field potential, python

Funding:

Availability: Free, Available for download, Freely available

Resource Name: Elephant

Resource ID: SCR_003833

Alternate IDs: nlx_158148

Alternate URLs: https://github.com/NeuralEnsemble/elephant

License: New BSD License, Copyrighted

Record Creation Time: 20220129T080221+0000

Record Last Update: 20250409T060319+0000

Ratings and Alerts

No rating or validation information has been found for Elephant.

No alerts have been found for Elephant.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 24 mentions in open access literature.

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

Gutzen R, et al. (2024) A modular and adaptable analysis pipeline to compare slow cerebral rhythms across heterogeneous datasets. Cell reports methods, 4(1), 100681.

Köhler CA, et al. (2024) Facilitating the Sharing of Electrophysiology Data Analysis Results Through In-Depth Provenance Capture. eNeuro, 11(6).

Nunley H, et al. (2024) Nuclear instance segmentation and tracking for preimplantation mouse embryos. Development (Cambridge, England), 151(21).

Sætra MJ, et al. (2024) An electrodiffusive network model with multicompartmental neurons and synaptic connections. PLoS computational biology, 20(11), e1012114.

Chintaluri C, et al. (2024) kCSD-python, reliable current source density estimation with quality control. PLoS computational biology, 20(3), e1011941.

Romani A, et al. (2024) Community-based reconstruction and simulation of a full-scale model

of the rat hippocampus CA1 region. PLoS biology, 22(11), e3002861.

Mocellin P, et al. (2024) A septal-ventral tegmental area circuit drives exploratory behavior. Neuron, 112(6), 1020.

Elleman AV, et al. (2024) Behavioral control through the direct, focal silencing of neuronal activity. Cell chemical biology, 31(7), 1324.

Müller-Komorowska D, et al. (2023) Phase information is conserved in sparse, synchronous population-rate-codes via phase-to-rate recoding. Nature communications, 14(1), 6106.

Sundiang M, et al. (2023) Dynamic structure of motor cortical neuron coactivity carries behaviorally relevant information. Network neuroscience (Cambridge, Mass.), 7(2), 661.

Chen X, et al. (2022) 1024-channel electrophysiological recordings in macaque V1 and V4 during resting state. Scientific data, 9(1), 77.

Koukouli F, et al. (2022) Visual-area-specific tonic modulation of GABA release by endocannabinoids sets the activity and coordination of neocortical principal neurons. Cell reports, 40(8), 111202.

Porrmann F, et al. (2021) Acceleration of the SPADE Method Using a Custom-Tailored FP-Growth Implementation. Frontiers in neuroinformatics, 15, 723406.

Frost Nylen J, et al. (2021) Dopaminergic and Cholinergic Modulation of Large Scale Networks in silico Using Snudda. Frontiers in neural circuits, 15, 748989.

, et al. (2019) 28th Annual Computational Neuroscience Meeting: CNS*2019. BMC neuroscience, 20(Suppl 1), 56.

Stella A, et al. (2019) 3d-SPADE: Significance evaluation of spatio-temporal patterns of various temporal extents. Bio Systems, 185, 104022.

Rothman JS, et al. (2018) NeuroMatic: An Integrated Open-Source Software Toolkit for Acquisition, Analysis and Simulation of Electrophysiological Data. Frontiers in neuroinformatics, 12, 14.

Trensch G, et al. (2018) Rigorous Neural Network Simulations: A Model Substantiation Methodology for Increasing the Correctness of Simulation Results in the Absence of Experimental Validation Data. Frontiers in neuroinformatics, 12, 81.

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.

Brochier T, et al. (2018) Massively parallel recordings in macaque motor cortex during an instructed delayed reach-to-grasp task. Scientific data, 5, 180055.