Resource Summary Report

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Neo

RRID:SCR_000634
Type: Tool

Proper Citation

Neo (RRID:SCR_000634)

Resource Information

URL: http://neuralensemble.org/neo/

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Description: A Python package for representing electrophysiology data, together with support for reading a wide range of neurophysiology file formats, including Spike2, NeuroExplorer, AlphaOmega, Axon, Blackrock, Plexon, Tdt, and support for writing to a subset of these formats plus non-proprietary formats including HDF5. The goal of Neo is to improve interoperability between Python tools for analyzing, visualizing and generating electrophysiology data (such as OpenElectrophy, NeuroTools, G-node, Helmholtz, PyNN) by providing a common, shared object model. In order to be as lightweight a dependency as possible, Neo is deliberately limited to represention of data, with no functions for data analysis or visualization. Neo implements a hierarchical data model well adapted to intracellular and extracellular electrophysiology and EEG data with support for multi-electrodes (for example tetrodes). Neo's data objects build on the quantities package, which in turn builds on NumPy by adding support for physical dimensions. Thus Neo objects behave just like normal NumPy arrays, but with additional metadata, checks for dimensional consistency and automatic unit conversion.

Abbreviations: neo

Resource Type: software resource

Defining Citation: PMID:24600386

Keywords: neurophysiology, electrophysiology, python, interoperability, intracellular, extracellular, eeg, electrode

Availability: Free, Available for download, Freely available

Resource Name: Neo

Resource ID: SCR_000634

Alternate IDs: nlx_151874

License: BSD License

Record Creation Time: 20220129T080202+0000

Record Last Update: 20260905T132423+0000

Ratings and Alerts

No rating or validation information has been found for Neo.

No alerts have been found for Neo.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 18 mentions in open access literature.

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

Köhler CA, et al. (2025) Improving data sharing and knowledge transfer via the Neuroelectrophysiology Analysis Ontology (NEAO). Scientific data, 12(1), 907.

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

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.

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.

Baccino-Calace M, et al. (2022) The E3 ligase Thin controls homeostatic plasticity through neurotransmitter release repression. eLife, 11.

García Murillo D, et al. (2022) NDI: A Platform-Independent Data Interface and Database for Neuroscience Physiology and Imaging Experiments. eNeuro, 9(1).

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.

Nair AG, et al. (2021) Distinct molecular pathways govern presynaptic homeostatic plasticity. Cell reports, 37(11), 110105.

Sehara K, et al. (2021) Real-Time Closed-Loop Feedback in Behavioral Time Scales Using DeepLabCut. eNeuro, 8(2).

Spool JA, et al. (2021) Genetically identified neurons in avian auditory pallium mirror core principles of their mammalian counterparts. Current biology : CB, 31(13), 2831.

Malezieux M, et al. (2020) Theta Oscillations Coincide with Sustained Hyperpolarization in CA3 Pyramidal Cells, Underlying Decreased Firing. Cell reports, 32(1), 107868.

Kumaraswamy A, et al. (2019) Adaptations during Maturation in an Identified Honeybee Interneuron Responsive to Waggle Dance Vibration Signals. eNeuro, 6(5).

Sprenger J, et al. (2019) odMLtables: A User-Friendly Approach for Managing Metadata of Neurophysiological Experiments. Frontiers in neuroinformatics, 13, 62.

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

Tanimura A, et al. (2019) Cholinergic Interneurons Amplify Thalamostriatal Excitation of Striatal Indirect Pathway Neurons in Parkinson's Disease Models. Neuron, 101(3), 444.

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.

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

Teeters JL, et al. (2015) Neurodata Without Borders: Creating a Common Data Format for Neurophysiology. Neuron, 88(4), 629.