Resource Summary Report

Generated by RRID on Apr 17, 2025

neuroVIISAS

RRID:SCR_006010
Type: Tool

Proper Citation

neuroVIISAS (RRID:SCR_006010)

Resource Information

URL: http://neuroviisas.med.uni-rostock.de/neuroviisas.html

Proper Citation: neuroVIISAS (RRID:SCR_006010)

Description: An open framework for integrative data analysis, visualization and population simulations for the exploration of network dynamics on multiple levels. This generic platform allows the integration of neuroontologies, mapping functions for brain atlas development, and connectivity data administration; all of which are required for the analysis of structurally and neurobiologically realistic simulations of networks. What makes neuroVIISAS unique is the ability to integrate neuroontologies, image stacks, mappings, visualizations, analyzes and simulations to use them for modelling and simulations. Based on the analysis of over 2020 tracing studies, atlas terminologies and registered histological stacks of images, neuroVIISAS permits the definition of neurobiologically realistic networks that are transferred to the simulation engine NEST. The analysis on a local and global level, the visualization of connectivity data and the results of simulations offer new possibilities to study structural and functional relationships of neural networks. neuroVIISAS provide answers to questions like: # How can we assemble data of tracing studies? (Metastudy) # Is it possible to integrate tracing and brainmapping data? (Data Integration) # How does the network of analyzed tracing studies looks like? (Visualization) # Which graph theoretical properties posses such a network? (Analysis) # Can we perform population simulations of a tracing study based network? (Simulation and higher level data integration) neuroVIISAS can be used to organize mapping and connectivity data of central nervous systems of any species. The rat brain project of neuroVIISAS contains 450237 ipsi- and 175654 contralateral connections. A list of evaluated tracing studies are available. PyNEST script generation does work using WINDOWS OS, however, the script must be transferred to a UNIX OS with installed NEST. The results file of the NEST simulation can be visualized and analyzed by neuroVIISAS on a WINDOWS OS.

Abbreviations: neuroVIISAS

Synonyms: neuro Visualization Imagemapping Information System for Analysis and Simulation

Resource Type: network graph visualization software, software application, data visualization software, data analytics software, data processing software, software resource, d visualization software

Defining Citation: PMID:22350719

Keywords: platform, simulation, mapping data, connectivity data, central nervous system, tracing, connectivity, java, image modality, pynest, nest, animation, brain, nervous system, brain mapping, neuroimaging, terminology, ontology, connectomics, atlas, population spike analysis, analytics, connectome, 3d visualization, visual analytics, ontology

Funding:

Resource Name: neuroVIISAS

Resource ID: SCR_006010

Alternate IDs: nlx_151398

Old URLs: http://139.30.176.116/index-Dateien/Page455.htm

Record Creation Time: 20220129T080233+0000

Record Last Update: 20250417T065238+0000

Ratings and Alerts

No rating or validation information has been found for neuroVIISAS.

No alerts have been found for neuroVIISAS.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 8 mentions in open access literature.

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

Sanda P, et al. (2024) Cholinergic modulation supports dynamic switching of resting state networks through selective DMN suppression. PLoS computational biology, 20(6), e1012099.

Schümann F, et al. (2023) Distribution of Cleaved SNAP-25 in the Rat Brain, following Unilateral Injection of Botulinum Neurotoxin-A into the Striatum. International journal of molecular sciences, 24(2).

Straathof M, et al. (2020) Distinct structure-function relationships across cortical regions and connectivity scales in the rat brain. Scientific reports, 10(1), 56.

Schwanke S, et al. (2019) Towards Differential Connectomics with NeuroVIISAS. Neuroinformatics, 17(1), 163.

Sinke MRT, et al. (2018) Diffusion MRI-based cortical connectome reconstruction: dependency on tractography procedures and neuroanatomical characteristics. Brain structure & function, 223(5), 2269.

Li M, et al. (2017) Rapid automated landmarking for morphometric analysis of three-dimensional facial scans. Journal of anatomy, 230(4), 607.

Schmitt O, et al. (2017) Prediction of regional functional impairment following experimental stroke via connectome analysis. Scientific reports, 7, 46316.

Sukhinin DI, et al. (2016) Building the Ferretome. Frontiers in neuroinformatics, 10, 16.