Resource Summary Report

Generated by Kravitz on Sep 10, 2026

Human Neocortical Neurosolver

RRID:SCR_017437
Type: Tool

Proper Citation

Human Neocortical Neurosolver (RRID:SCR_017437)

Resource Information

URL: https://hnn.brown.edu/

Proper Citation: Human Neocortical Neurosolver (RRID:SCR_017437)

Description: Open source software package for circuit level interpretation of human EEG/MEG data. Software tool for interpreting cellular and network origin of human MEG/EEG data. Simulates electrical activity of neocortical cells and circuits that generate primary electrical currents underlying EEG/MEG recordings. Designed for researchers and clinicians, without computational neural modeling experience, to develop and test hypothesis on circuit origin of their data.

Abbreviations: HNN

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

Defining Citation: DOI:10.1101/740597

Keywords: Neural, modeling, human, imaging, data, EEG, MEG, electrical, neocortical, cell, circuit, BRAIN Initiative, bio.tools

Funding: NIBIB R01 EB022889;
NIDCD R01 DC012947

Availability: Free, Available for download, Freely available

Resource Name: Human Neocortical Neurosolver

Resource ID: SCR_017437

Alternate IDs: SCR_017678, biotools:HNN

Alternate URLs: https://github.com/jonescompneurolab/hnn, https://github.com/jonescompneurolab/hnn/tree/0.0.5,

https://github.com/jonescompneurolab/hnn/tree/0.1.2, https://zenodo.org/record/2394296#.Xg4rCEdKiM9, https://bio.tools/HNN

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Record Creation Time: 20220129T080335+0000

Record Last Update: 20260905T132824+0000

Ratings and Alerts

No rating or validation information has been found for Human Neocortical Neurosolver.

No alerts have been found for Human Neocortical Neurosolver.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 13 mentions in open access literature.

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

Thorpe RV, et al. (2024) Distinct neocortical mechanisms underlie human SI responses to median nerve and laser-evoked peripheral activation. Imaging neuroscience (Cambridge, Mass.), 2.

Pujol CF, et al. (2023) Laminar Specificity of the Auditory Perceptual Awareness Negativity: A Biophysical Modeling Study. bioRxiv : the preprint server for biology.

Fernandez Pujol C, et al. (2023) Laminar specificity of the auditory perceptual awareness negativity: A biophysical modeling study. PLoS computational biology, 19(6), e1011003.

Lankinen K, et al. (2023) Neuronal modeling of magnetoencephalography responses in auditory cortex to auditory and visual stimuli. bioRxiv : the preprint server for biology.

Diesburg DA, et al. (2023) Biophysical modeling of frontocentral ERP generation links circuit-level mechanisms of action-stopping to a behavioral race model. bioRxiv : the preprint server for biology.

Kohl C, et al. (2022) Neural Mechanisms Underlying Human Auditory Evoked Responses Revealed By Human Neocortical Neurosolver. Brain topography, 35(1), 19.

Law RG, et al. (2022) Thalamocortical Mechanisms Regulating the Relationship between Transient Beta Events and Human Tactile Perception. Cerebral cortex (New York, N.Y. : 1991), 32(4), 668.

Bonaiuto JJ, et al. (2021) Laminar dynamics of high amplitude beta bursts in human motor cortex. NeuroImage, 242, 118479.

Neymotin SA, et al. (2020) Human Neocortical Neurosolver (HNN), a new software tool for interpreting the cellular and network origin of human MEG/EEG data. eLife, 9.

Tal I, et al. (2020) Oscillatory Bursting as a Mechanism for Temporal Coupling and Information Coding. Frontiers in computational neuroscience, 14, 82.

Shaw AD, et al. (2020) Oscillatory, Computational, and Behavioral Evidence for Impaired GABAergic Inhibition in Schizophrenia. Schizophrenia bulletin, 46(2), 345.

Barzegaran E, et al. (2019) EEGSourceSim: A framework for realistic simulation of EEG scalp data using MRI-based forward models and biologically plausible signals and noise. Journal of neuroscience methods, 328, 108377.

Bielczyk NZ, et al. (2019) Increasing robustness of pairwise methods for effective connectivity in magnetic resonance imaging by using fractional moment series of BOLD signal distributions. Network neuroscience (Cambridge, Mass.), 3(4), 1009.