

Resource Summary Report

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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](https://doi.org/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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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 [PRECISE-TBI](#).

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.

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

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

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.