

Resource Summary Report

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Low Resolution Electromagnetic Tomography

RRID:SCR_007077

Type: Tool

Proper Citation

Low Resolution Electromagnetic Tomography (RRID:SCR_007077)

Resource Information

URL: <http://www.uzh.ch/keyinst/loreta>

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Description: Software package for functional imaging of human brain. Used to compute three dimensional distribution of electric neuronal activity from non-invasive measurements of scalp electric potential differences with high time resolution in millisecond range. Non-invasive intracranial time series are used for studying functional dynamic connectivity.. Current software version includes two new, improved variants of the original method: standardized (sLORETA) and exact (eLORETA). The new methods are characterized by exact localization when tested with point sources. Due to the fact that these methods are multivariate tomographies that are solutions to the inverse EEG problem, and that they are linear in nature, they will produce a low spatial resolution image for any distribution of activity. This property is not shared by naive one-at-a-time single dipole techniques.

Abbreviations: LORETA

Synonyms: LORETA: low resolution brain electromagnetic tomography, Low Resolution Electromag TomogrAphy

Resource Type: software resource, software toolkit

Defining Citation: [PMID:7876038](#), [PMID:12575492](#)

Keywords: eeg, meg, electrocorticography, eeg modeling, forward - inverse, modeling, functional, statistical, visualization, dynamic functional connectivity, microstate segmentation, electroencephalogram, nonparametric randomization

Funding: Roche Research Foundation

Availability: Free, Non-commercial

Resource Name: Low Resolution Electromagnetic Tomography

Resource ID: SCR_007077

Alternate IDs: nif-0000-00323

Alternate URLs: <http://www.nitrc.org/projects/loreta>

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Record Creation Time: 20220129T080239+0000

Record Last Update: 20260905T133238+0000

Ratings and Alerts

No rating or validation information has been found for Low Resolution Electromagnetic Tomography.

No alerts have been found for Low Resolution Electromagnetic Tomography.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 578 mentions in open access literature.

Listed below are recent publications. The full list is available at [PRECISE-TBI](#) .

Proverbio AM, et al. (2026) Reinstating motivational states: Electrical signatures of craving and neural mind reading. PloS one, 21(1), e0315068.

- Branigan KS, et al. (2026) Electromagnetic field stimulation modulates working memory and cortical alpha oscillations in healthy adults. *Scientific reports*, 16(1).
- Shi X, et al. (2026) Neural Mechanisms of Shooting Preparation Under High-Risk and High-Precision Tasks: A Multiscale EEG Study. *Brain and behavior*, 16(3), e71261.
- Lees T, et al. (2026) Modulatory effects of ketamine on EEG source-based resting state connectivity in treatment resistant depression. *Translational psychiatry*, 16(1).
- Giustiniani J, et al. (2026) Spatio-temporal differences in EEG dynamics during decision-making between online poker players with moderate-risk and high-risk gambling activity. *Scientific reports*, 16(1).
- Li Y, et al. (2026) Neurophysiological connectomic signatures of consciousness during propofol-induced general anesthesia. *Cell reports. Medicine*, 7(2), 102581.
- Elmer S, et al. (2026) EEG-Based Multifocal Tomographic Neurofeedback in Older Individuals With Chronic Tinnitus Does Not Lead to Persistent Electrophysiological Changes. *Brain and behavior*, 16(4), e71293.
- Huang Q, et al. (2026) Differential GABA dynamics across brain functional networks in autism. *Communications biology*, 9(1), 283.
- Ukai K, et al. (2026) Age-Related Differences in Neural Networks for Error Detection and Inhibitory Control: A LORETA-Based Comparative Study. *Brain sciences*, 16(6).
- Lopez S, et al. (2026) The compensatory effect of education as revealed by resting-state electroencephalographic alpha rhythms in patients with dementia due to Parkinson's disease: findings from an exploratory study. *GeroScience*, 48(1), 1189.
- Chezzi CD, et al. (2026) Delayed Correlations Between Geomagnetic Activity and Human EEG Alpha and Theta Oscillations: Evidence from Archival and Experimental Data. *Brain sciences*, 16(6).
- Bugos JA, et al. (2026) Enhanced Contour-Deviant Mismatch Negativity and Mnemonic Representations in Older Musicians. *The European journal of neuroscience*, 63(12), e70576.
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- Young TC, et al. (2025) The impact of pituitary adenomas on cognitive performance: a systematic review. *Frontiers in endocrinology*, 16, 1534635.
- Scala I, et al. (2025) Analysis of the effect of 6-Hz binaural beats on electroencephalographic and autonomic parameters of healthy individuals: An exploratory study. *Physiological reports*, 13(10), e70271.

Tahamata VM, et al. (2025) Domain-Specific and Domain-General Functional Brain Alterations in Type 2 Diabetes Mellitus: A Task-Based and Functional Connectivity Meta-Analysis. *Brain and behavior*, 15(4), e70438.

Jaiswal S, et al. (2025) Brief mindfulness coaching enhances selective attention in medical scientists: A pilot study. *PloS one*, 20(9), e0330290.

Liu Z, et al. (2025) Can repetitive transcranial magnetic stimulation promote recovery of consciousness in patients with disorders of consciousness? A randomized controlled trial. *NeuroImage. Clinical*, 46, 103802.

Zotev V, et al. (2025) Evaluation of Theta EEG Neurofeedback Procedure for Cognitive Training Using Simultaneous fMRI in Counterbalanced Active-Sham Study Design. *Human brain mapping*, 46(1), e70127.