

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 toolkit, software resource

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: 20260803T040450+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 560 mentions in open access literature.

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

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

Frank LR, et al. (2025) Imaging of brain electric field networks with spatially resolved EEG. *eLife*, 13.

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.

Young TC, et al. (2025) The impact of pituitary adenomas on cognitive performance: a systematic review. *Frontiers in endocrinology*, 16, 1534635.

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

Ueno K, et al. (2025) Current source density and functional connectivity extracted from resting-state electroencephalography as biomarkers for chronic low back pain. *Pain reports*, 10(1), e1233.

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.

Mitterov?? K, et al. (2025) Early functional changes in lewy body dementia: roles of dynamics, locus coeruleus, and compensation. *Alzheimer's research & therapy*, 17(1), 199.

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.

Zhang H, et al. (2025) Early treatment-related changes in dorsolateral prefrontal cortex activity and functional connectivity as potential biomarkers for antidepressant response in major depressive disorder. *Translational psychiatry*, 15(1), 350.

Borr??s M, et al. (2025) Assessing Motor Cortical Activity: How Repetitions Impact Motor Execution and Imagery Analysis. *Psychophysiology*, 62(6), e70090.

Helbling S, et al. (2025) Inferring laminar origins of MEG signals with optically pumped magnetometers (OPMs): A simulation study. *Imaging neuroscience (Cambridge, Mass.)*, 3.

Nishida K, et al. (2025) A Single Session of tDCS Stimulation Can Modulate an EEG Microstate Associated With Anxiety in Patients With Depression. *Brain and behavior*, 15(5), e70580.

Rochas V, et al. (2025) EEG correlates of egocentric and altercentric biases in forensic cases with borderline personality. *Frontiers in neuroscience*, 19, 1583050.

Nan J, et al. (2025) Climate trauma from wildfire exposure impacts cognitive decision-making. *Scientific reports*, 15(1), 11992.

Mathew J, et al. (2025) Can EEG-Neurofeedback Training Enhance Effective Connectivity in People With Chronic Secondary Musculoskeletal Pain? A Secondary Analysis of a Feasibility Randomized Controlled Clinical Trial. *Brain and behavior*, 15(6), e70541.

Mathew J, et al. (2025) The Impact of Alpha-Neurofeedback Training on Gastric Slow Wave Activity and Heart Rate Variability in Humans. *Neurogastroenterology and motility*, 37(5), e15009.

Zarei AA, et al. (2025) The electrocortical activity of elite Rubik's cube athletes while solving the cube. *Experimental brain research*, 243(6), 155.

Brehme H, et al. (2025) Neuronal network analysis during short time transcranial direct current stimulation with permanent EEG measurement in early childhood: a feasibility study. *Journal of neural transmission (Vienna, Austria : 1996)*, 132(8), 1217.