

Resource Summary Report

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L-Measure

RRID:SCR_003487

Type: Tool

Proper Citation

L-Measure (RRID:SCR_003487)

Resource Information

URL: <http://cng.gmu.edu:8080/Lm>

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Description: A freely available software tool available for the Windows and Linux platform, as well as the Online version Applet, for the analysis, comparison and search of digital reconstructions of neuronal morphologies. For the quantitative characterization of neuronal morphology, LM computes a large number of neuroanatomical parameters from 3D digital reconstruction files starting from and combining a set of core metrics. After more than six years of development and use in the neuroscience community, LM enables the execution of commonly adopted analyses as well as of more advanced functions, including: (i) extraction of basic morphological parameters, (ii) computation of frequency distributions, (iii) measurements from user-specified subregions of the neuronal arbors, (iv) statistical comparison between two groups of cells and (v) filtered selections and searches from collections of neurons based on any Boolean combination of the available morphometric measures. These functionalities are easily accessed and deployed through a user-friendly graphical interface and typically execute within few minutes on a set of 20 neurons. The tool is available for either online use on any Java-enabled browser and platform or may be downloaded for local execution under Windows and Linux.

Abbreviations: LM

Resource Type: image analysis software, service resource, software application, software resource, data processing software, image processing software

Defining Citation: [PMID:18451794](#)

Keywords: neuronal morphology, neuroinformatics, branching analysis, digital reconstruction, analysis, comparison, bio.tools

Funding: Human Brain Project ;
NINDS R01 NS39600

Availability: Public

Resource Name: L-Measure

Resource ID: SCR_003487

Alternate IDs: nif-0000-00003, biotools:l-measure

Alternate URLs: <http://www.nitrc.org/projects/lmeasure>, <https://bio.tools/l-measure>

Record Creation Time: 20220129T080219+0000

Record Last Update: 20260801T190231+0000

Ratings and Alerts

No rating or validation information has been found for L-Measure.

No alerts have been found for L-Measure.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 30 mentions in open access literature.

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

Liu Y, et al. (2024) Neuronal diversity and stereotypy at multiple scales through whole brain morphometry. Nature communications, 15(1), 10269.

Vasques X, et al. (2023) Application of quantum machine learning using quantum kernel algorithms on multiclass neuron M-type classification. Scientific reports, 13(1), 11541.

Du XF, et al. (2023) Circadian regulation of developmental synaptogenesis via the hypocretinergic system. Nature communications, 14(1), 3195.

Chiazza F, et al. (2021) Short high fat diet triggers reversible and region specific effects in DCX+ hippocampal immature neurons of adolescent male mice. Scientific reports, 11(1), 21499.

Bondi H, et al. (2021) Complex and regional-specific changes in the morphological complexity of GFAP+ astrocytes in middle-aged mice. Neurobiology of aging, 100, 59.

Bijari K, et al. (2021) Quantitative neuronal morphometry by supervised and unsupervised learning. STAR protocols, 2(4), 100867.

Wang Y, et al. (2021) Single-cell morphological characterization of CRH neurons throughout the whole mouse brain. BMC biology, 19(1), 47.

Spyrka J, et al. (2020) Early life stress-induced alterations in the activity and morphology of ventral tegmental area neurons in female rats. *Neurobiology of stress*, 13, 100250.

Moreno-Velasquez L, et al. (2020) Circuit-Specific Dendritic Development in the Piriform Cortex. *eNeuro*, 7(3).

Welle CG, et al. (2020) Longitudinal neural and vascular structural dynamics produced by chronic microelectrode implantation. *Biomaterials*, 238, 119831.

López-Cabrera JD, et al. (2020) New morphological features based on the Sholl analysis for automatic classification of traced neurons. *Journal of neuroscience methods*, 343, 108835.

Bingham CS, et al. (2020) ROOTS: An Algorithm to Generate Biologically Realistic Cortical Axons and an Application to Electroceutical Modeling. *Frontiers in computational neuroscience*, 14, 13.

Swinehart BD, et al. (2020) Integrin $\alpha 3$ organizes dendritic complexity of cerebral cortical pyramidal neurons along a tangential gradient. *Molecular brain*, 13(1), 168.

Berardino BG, et al. (2019) Exposure to enriched environment rescues anxiety-like behavior and miRNA deregulated expression induced by perinatal malnutrition while altering oligodendrocyte morphology. *Neuroscience*, 408, 115.

Hernández-Pérez LA, et al. (2019) New Features for Neuron Classification. *Neuroinformatics*, 17(1), 5.

Castells-Nobau A, et al. (2019) Conserved regulation of neurodevelopmental processes and behavior by FoxP in *Drosophila*. *PloS one*, 14(2), e0211652.

Cervantes EP, et al. (2019) Morphological Neuron Classification Based on Dendritic Tree Hierarchy. *Neuroinformatics*, 17(1), 147.

Li Z, et al. (2018) Large-scale Exploration of Neuronal Morphologies Using Deep Learning and Augmented Reality. *Neuroinformatics*, 16(3-4), 339.

Holley ZL, et al. (2018) Cross-Regional Gradient of Dendritic Morphology in Isochronically-Sourced Mouse Supragranular Pyramidal Neurons. *Frontiers in neuroanatomy*, 12, 103.

Pushchin I, et al. (2017) Structure and diversity of retinal ganglion cells in steller's sculpin *Myoxocephalus stelleri tilesius*, 1811. *The Journal of comparative neurology*, 525(5), 1122.