

Resource Summary Report

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TrakEM2

RRID:SCR_008954

Type: Tool

Proper Citation

TrakEM2 (RRID:SCR_008954)

Resource Information

URL: <http://www.ini.uzh.ch/~acardona/trakem2.html>

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Description: An ImageJ plugin for morphological data mining, three-dimensional modeling and image stitching, registration, editing and annotation. Two independent modalities exist: either XML-based projects, working directly with the file system, or database-based projects, working on top of a local or remote PostgreSQL database. What can you do with it? * Semantic segmentation editor: order segmentations in tree hierarchies, whose template is exportable for reuse in other, comparable projects. * Model, visualize and export 3D. * Work from your laptop on your huge, remote image storage. * Work with an endless number of images, limited only by the hard drive capacity. Dozens of formats supported thanks to LOCI Bioformats and ImageJ. * Import stacks and even entire grids (montages) of images, automatically stitch them together and homogenize their histograms for best montaging quality. * Add layers conveniently. A layer represents, for example, one 50 nm section (for TEM) or a confocal section. Each layer has its own Z coordinate and thickness, and contains images, labels, areas, nodes of 3d skeletons, profiles... * Insert layer sets into layers: so your electron microscopy serial sections can live inside your optical microscopy sections. * Run any ImageJ plugin on any image. * Measure everything: areas, volumes, pixel intensities, etc. using both built-in data structures and segmentation types, and standard ImageJ ROIs. And with double dissectors! * Visualize RGB color channels changing the opacity of each on the fly, non-destructively. * Annotate images non-destructively with floating text labels, which you can rotate/scale on the fly and display in any color. * Montage/register/stitch/blend images manually with transparencies, semiautomatically, or fully automatically within and across sections, with translation, rigid, similarity and affine models with automatically extracted SIFT features. * Correct the lens distortion present in the images, like those generated in transmission electron microscopy. * Add alpha masks to images using ROIs, for example to split images in two or more parts, or to remove the borders of an image or collection of images. * Model neuronal arbors with 3D skeletons (with areas or radiuses), and synapses with connectors. * Undo all steps. And much more...

Abbreviations: TrakEM2

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

Defining Citation: [PMID:22723842](#), [PMID:20957184](#)

Keywords: java, imagej plugin, neuronal circuit, reconstruction, electron microscopy, optical image volume, arbor, synapse, image, align, register, FASEB list

Funding: Swiss National Science Foundation 31003A_132969;
NINDS 1-R01 NS054814-05

Availability: If your work uses TrakEM2 or its associated image registration libraries, Please cite.

Resource Name: TrakEM2

Resource ID: SCR_008954

Alternate IDs: nlx_151924

Record Creation Time: 20220129T080250+0000

Record Last Update: 20260804T043400+0000

Ratings and Alerts

No rating or validation information has been found for TrakEM2.

No alerts have been found for TrakEM2.

Data and Source Information

Source: [SciCrunch Registry](#)

Usage and Citation Metrics

We found 330 mentions in open access literature.

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

Thayer JA, et al. (2026) A unified mechanism for mitochondrial damage sensing in PINK1-Parkin-mediated mitophagy. The EMBO journal, 45(1), 64.

Richter V, et al. (2025) Morphology and ultrastructure of external sense organs of Drosophila larvae. eLife, 12.

Corte GM, et al. (2025) Morphological and functional aspects of the canine placental barrier: evidence supporting a deciduo-chorial model. Reproduction & fertility, 6(4).

- Cook SJ, et al. (2025) Comparative connectomics of two distantly related nematode species reveals patterns of nervous system evolution. *Science* (New York, N.Y.), 389(6759), eadx2143.
- Micheva KD, et al. (2025) Data-driven synapse classification reveals a logic of glutamate receptor diversity. *bioRxiv : the preprint server for biology*.
- Rito T, et al. (2025) Timely TGF β signalling inhibition induces notochord. *Nature*, 637(8046), 673.
- Nitta A, et al. (2025) Molecular and Anatomical Strengthening of "Winner" Climbing Fiber Synapses in Developing Mouse Purkinje Cells. *The Journal of neuroscience : the official journal of the Society for Neuroscience*, 45(15).
- Gruber L, et al. (2025) The unique synaptic circuitry of specialized olfactory glomeruli in *Drosophila melanogaster*. *eLife*, 12.
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- Hernández-Nieto S, et al. (2025) Developmental sequence of the chondrocranium in the obligate carnivorous larvae of *Lepidobatrachus laevis* (Amphibia: Ceratophryidae). *Anatomical record* (Hoboken, N.J. : 2007), 308(1), 26.
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- Krentzel D, et al. (2025) CLEM-Reg: an automated point cloud-based registration algorithm for volume correlative light and electron microscopy. *Nature methods*, 22(9), 1923.
- Araya C, et al. (2025) An analysis of contractile and protrusive cell behaviors at the superficial surface of the zebrafish neural plate. *Developmental dynamics : an official publication of the American Association of Anatomists*, 254(10), 1115.
- Phan J, et al. (2025) Recovery of plasma membrane tension after a hyperosmotic shock. *Molecular biology of the cell*, 36(4), ar45.
- Wallin J, et al. (2025) Afferent input differentially regulates establishment and maintenance of synapses in the mammalian retina. *Scientific reports*, 15(1), 41045.
- Kleefeldt F, et al. (2025) Three-Dimensional Visualization of the Cardiac Stroma. *Cells*, 14(14).

Miyata T, et al. (2025) Phagophores originate from endoplasmic reticulum membranes in vasopressin neurons in a mouse model of familial neurohypophysial diabetes insipidus. *Cell and tissue research*, 402(2), 139.