

Resource Summary Report

Generated by PRECISE-TBI on Sep 8, 2026

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

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: 20260905T133045+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 344 mentions in open access literature.

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

Wu P, et al. (2026) Mitophagy promotes lung repair and regeneration by restoring epithelial metabolic fitness. Nature communications, 17(1).

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

Kim SH, et al. (2026) Remodeling synaptic connections via engineered neuron-astrocyte interactions. Nature communications, 17(1).

- Jokura K, et al. (2026) Neural connectome of the ctenophore statocyst. *eLife*, 14.
- Ferraioli A, et al. (2026) The 3D architecture of the ctenophore aboral organ and the evolution of complex integrative centers in animals. *Science advances*, 12(10), eaea8399.
- Han K, et al. (2026) 4D single-cell spatial transcriptomics reveals dynamic morphogenetic gradients and regenerative domains in planarians. *GigaScience*, 15.
- Park C, et al. (2026) Synchronous climbing fiber activity enables instructive signaling for cerebellar learning through modulation of disinhibitory circuits. *Nature neuroscience*, 29(6), 1425.
- Chalatsi T, et al. (2026) Autophagy regulates PVALB (parvalbumin) interneuron excitability and memory. *Autophagy*, 22(2), 351.
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- Hamada N, et al. (2026) Distinct pathophysiological mechanisms of CEP152 variants in microcephaly and brain abnormalities. *EMBO molecular medicine*, 18(6), 2180.
- Kim GH, et al. (2026) Synaptic ultrastructural alterations in human focal cortical dysplasia: Insights from volume electron microscopy. *Epilepsia*, 67(4), 2007.
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- Puska ML, et al. (2026) A cone opsin double knockout mouse reveals long-term cone survival and provides a platform for gene therapy. *Research square*.
- Corte GM, et al. (2025) Morphological and functional aspects of the canine placental barrier: evidence supporting a deciduo-chorial model. *Reproduction & fertility*, 6(4).
- Richter V, et al. (2025) Morphology and ultrastructure of external sense organs of *Drosophila* larvae. *eLife*, 12.
- Rito T, et al. (2025) Timely TGF β signalling inhibition induces notochord. *Nature*, 637(8046), 673.
- Micheva KD, et al. (2025) Data-driven synapse classification reveals a logic of glutamate receptor diversity. *bioRxiv : the preprint server for biology*.
- Gruber L, et al. (2025) The unique synaptic circuitry of specialized olfactory glomeruli in *Drosophila melanogaster*. *eLife*, 12.