Resource Summary Report

Generated by ASWG on Sep 18, 2026

Vaa3D

RRID:SCR_002609
Type: Tool

Proper Citation

Vaa3D (RRID:SCR_002609)

Resource Information

URL: http://www.vaa3d.org

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Description: A handy, fast, and versatile 3D/4D/5D Image Visualization & Analysis System for Bioimages & Surface Objects. Vaa3D is a cross-platform (Mac, Linux, and Windows) tool for visualizing large-scale (gigabytes, and 64-bit data) 3D/4D/5D image stacks and various surface data. It is also a container of powerful modules for 3D image analysis (cell segmentation, neuron tracing, brain registration, annotation, quantitative measurement and statistics, etc) and data management. Vaa3D is very easy to be extended via a powerful plugin interface. For example, many ITK tools are being converted to Vaa3D Plugins. Vaa3D-Neuron is built upon Vaa3D to make 3D neuron reconstruction much easier. In a recent Nature Biotechnology paper (2010, 28(4), pp.348-353) about Vaa3D and Vaa3D-Neuron, an order of magnitude of performance improvement (both reconstruction accuracy and speed) was achieved compared to other tools.

Abbreviations: Vaa3D, Vaa3D-Neuron

Synonyms: V3D, Vaa3D: A Swiss army knife for bioimage visualization & analysis, V3D-Neuron, Vaa3D: A Swiss army knife for bioimage visualization and analysis, 3D Visualization-Assisted Analysis, Vaa3D and Vaa3D-Neuron

Resource Type: data management software, data processing software, data visualization software, image analysis software, software application, software resource, software toolkit

Defining Citation: PMID:20231818

Keywords: reusable library, atlas application, c, c++, cygwin, fiber tracking, gnome, image display, kde, linux, macos, microsoft, magnetic resonance, neuronal characterization, development environment, position, posix/unix-like, quantification, registration, rendering, resampling, segmentation, shape analysis, spatial transformation, surface analysis, tractography, visualization, volumetric analysis, warping, win32 (ms windows), windows, windows 95/98/2000, windows nt/2000, windows vista, windows xp, 3d neuron reconstruction, 3d, neuron, reconstruction, microscopy

Funding: Howard Hughes Medical Institute

Availability: Free, Available for download, Freely available

Resource Name: Vaa3D

Resource ID: SCR_002609

Alternate IDs: nlx_156012

Alternate URLs: http://www.nitrc.org/projects/v3d

License: v3D License 2010-April

Record Creation Time: 20220129T080214+0000

Record Last Update: 20260912T195543+0000

Ratings and Alerts

No rating or validation information has been found for Vaa3D.

No alerts have been found for Vaa3D.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 166 mentions in open access literature.

Listed below are recent publications. The full list is available at ASWG .

Trusel M, et al. (2026) Holistic motor control of zebra finch song syllable sequences. Nature, 652(8108), 157.

Ahuja K, et al. (2026) Human Myelin Spheres for in Vitro Oligodendrocyte Maturation, Myelination and Neurological Disease Modeling. Stem cell reviews and reports, 22(3), 1420.

Liu XP, et al. (2026) Morphoelectric Diversity and Specialization of Neuronal Cell Types in the Primate Striatum. bioRxiv : the preprint server for biology.

Urca T, et al. (2026) Miniature brain encodes optomotor response behavior in tiny thrips. iScience, 29(3), 114966.

Scott-Solache J, et al. (2026) Control of microglial dynamics by the Arp2/3 complex and the autism- and schizophrenia-associated protein CYFIP1. Proceedings of the National Academy of Sciences of the United States of America, 123(11), e2532488123.

Liu Y, et al. (2026) A mouse brain atlas based on dendritic microenvironments. Nature neuroscience, 29(1), 111.

Yu X, et al. (2026) CTSS regulates macrophage lipid metabolic reprogramming and white matter repair after intracerebral hemorrhage. Journal of translational medicine, 24(1).

Kessels S, et al. (2025) Cytoskeletal control in adult microglia is essential to restore neurodevelopmental synaptic and cognitive deficits. Science advances, 11(35), eadw0128.

Solako??lu ST, et al. (2025) Layer-specific input to medial prefrontal cortex is linked to stress susceptibility. Translational psychiatry, 15(1), 134.

Simon E, et al. (2025) Filopodia are essential for steroid release. Nature communications, 16(1), 5501.

Rifat A, et al. (2025) The chloride intracellular channel 1 (CLIC1) is essential for microglial morphodynamics and neuroinflammation. Science advances, 11(43), eads9181.

Tasciotti S, et al. (2025) From Morphology to Computation: How Synaptic Organization Shapes Place Fields in CA1 Pyramidal Neurons. bioRxiv : the preprint server for biology.

Urca T, et al. (2025) Visual gaze bias motion detection by split eyes in miniature whiteflies. iScience, 28(6), 112730.

Masoli S, et al. (2025) Cerebellar basket cell filtering of Purkinje cell responses elicited by low frequency parallel fibre transmission. Scientific reports, 15(1), 25192.

Trusel M, et al. (2025) Holistic Motor Control of Zebra Finch Song Syllable Sequences. bioRxiv : the preprint server for biology.

Lin H, et al. (2025) 1275-nm Photobiomodulation Alleviates Brain Drainage Impairment as a Promising Therapeutic Strategy for Aging-Related Neurological Decline. Aging cell, 24(12), e70261.

Hintiryan H, et al. (2025) Distinct subnetworks of the mouse anterior thalamic nuclei. Nature communications, 16(1), 6018.

Matthews EA, et al. (2025) RNA-programmable cell-type monitoring and manipulation in the human cortex with CellREADR. Cell reports, 44(8), 116037.

Xiong F, et al. (2025) Reconstruction of a connectome of single neurons in mouse brains by cross-validating multi-scale multi-modality data. Nature methods, 22(12), 2670.

Thakur P, et al. (2025) An antisense oligonucleotide-based strategy to ameliorate cognitive dysfunction in the 22q11.2 Deletion Syndrome. eLife, 13.