**Vaa3D**

RRID:SCR_002609

**Type:** Tool

**Proper Citation**

Vaa3D (RRID:SCR_002609)

**Resource Information**

**URL:** [http://www.vaa3d.org](http://www.vaa3d.org)

**Proper Citation:** Vaa3D (RRID:SCR_002609)

**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 processing software, data management software, data visualization software, software resource, image analysis software, software toolkit, software application

**Defining Citation:** [PMID:20231818](https://www.ncbi.nlm.nih.gov/pubmed/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 Agency:** Howard Hughes Medical Institute

**Availability:** v3D License 2010-April, [Http://www.nitrc.org/include/glossary.php#581](http://www.nitrc.org/include/glossary.php#581)

**Resource Name:** Vaa3D

**Resource ID:** SCR_002609

**Alternate IDs:** nlx_156012

**Alternate URLs:** [http://www.nitrc.org/projects/v3d](http://www.nitrc.org/projects/v3d)

**Record Creation Time:** 20220129T080214+0000

**Record Last Update:** 20240820T053204+0000

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**Ratings and Alerts**


No alerts have been found for Vaa3D.

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**Data and Source Information**

**Source:** [SciCrunch Registry](http://www.nitrc.org/projects/v3d)

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**Usage and Citation Metrics**

We found 129 mentions in open access literature.

**Listed below are recent publications.** The full list is available at [FDI Lab - SciCrunch.org](http://www.nitrc.org/projects/v3d).


Offner T, et al. (2023) Functional odor map heterogeneity is based on multifaceted glomerular connectivity in larval Xenopus olfactory bulb. iScience, 26(9), 107518.


Huber N, et al. (2022) C9orf72 hexanucleotide repeat expansion leads to altered neuronal and dendritic spine morphology and synaptic dysfunction. Neurobiology of disease, 162, 105584.


