Resource Summary Report

Generated by SPARC SAWG on Aug 9, 2026

EyeWire

RRID:SCR_008816
Type: Tool

Proper Citation

EyeWire (RRID:SCR_008816)

Resource Information

URL: http://eyewire.org/

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Description: An online game for mapping neuronal connections in the retina. The site provides microscopic retinal images and uses crowdsourcing to make sense of the images. EyeWire is where the general public can help make discoveries about the neural structure of the retina. The challenge is to map the neural connections of the retina by analyzing images that were acquired using serial electron microscopy at the Max Planck Institute for Medical Research in Heidelberg, Germany. A retinal volume of size 350??300 ??60 micrometer cubed was imaged, amounting to about one terabyte of data. Retinal Connectome * Game 1: Reconstructing Neurons * Game 2: Identifying Synapses Eyewire incorporates computational technologies developed by the laboratory of Prof. Sebastian Seung at MIT.

Abbreviations: Eyewire

Resource Type: software resource

Keywords: neuron, retina, neuronal connection, crowdsourcing, image, game, connectome, connectomics, challenge, eye, synapse, segmentation, BRAIN Initiative

Funding: BRAIN Project D16PC0005

Resource Name: EyeWire

Resource ID: SCR_008816

Alternate IDs: nlx_144421

Record Creation Time: 20220129T080249+0000

Record Last Update: 20260808T185920+0000

Ratings and Alerts

No rating or validation information has been found for EyeWire.

No alerts have been found for EyeWire.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 23 mentions in open access literature.

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

Oesterle J, et al. (2025) Task-specific regional circuit adaptations in distinct mouse retinal ganglion cells. Science advances, 11(17), eadp7075.

Vishwanathan A, et al. (2024) Predicting modular functions and neural coding of behavior from a synaptic wiring diagram. Nature neuroscience, 27(12), 2443.

Wang H, et al. (2024) Parallel pathways carrying direction-and orientation-selective retinal signals to layer 4 of the mouse visual cortex. Cell reports, 43(3), 113830.

Friedrichsen K, et al. (2024) Subcellular pathways through VGluT3-expressing mouse amacrine cells provide locally tuned object-motion-selective signals in the retina. Nature communications, 15(1), 2965.

Qiao M, et al. (2024) Deciphering the genetic code of neuronal type connectivity through bilinear modeling. eLife, 12.

Miller JA, et al. (2023) Practical recommendations from a multi-perspective needs and challenges assessment of citizen science games. PloS one, 18(5), e0285367.

Wang H, et al. (2023) Parallel pathways carrying direction and orientation selective retinal signals to layer 4 of mouse visual cortex. bioRxiv : the preprint server for biology.

Cooler S, et al. (2021) An offset ON-OFF receptive field is created by gap junctions between distinct types of retinal ganglion cells. Nature neuroscience, 24(1), 105.

Odenwald SF, et al. (2020) A citation study of earth science projects in citizen science. PloS one, 15(7), e0235265.

De Lellis P, et al. (2019) Using demographics toward efficient data classification in citizen science: a Bayesian approach. PeerJ. Computer science, 5, e239.

Bae JA, et al. (2018) Digital Museum of Retinal Ganglion Cells with Dense Anatomy and Physiology. Cell, 173(5), 1293.

Ellwood ER, et al. (2018) Worldwide Engagement for Digitizing Biocollections (WeDigBio): The Biocollections Community's Citizen-Science Space on the Calendar. Bioscience, 68(2), 112.

Zhao T, et al. (2018) NeuTu: Software for Collaborative, Large-Scale, Segmentation-Based Connectome Reconstruction. Frontiers in neural circuits, 12, 101.

Vishwanathan A, et al. (2017) Electron Microscopic Reconstruction of Functionally Identified Cells in a Neural Integrator. Current biology : CB, 27(14), 2137.

Sharpee TO, et al. (2016) 25th Annual Computational Neuroscience Meeting: CNS-2016. BMC neuroscience, 17 Suppl 1(Suppl 1), 54.

Marée R, et al. (2016) Collaborative analysis of multi-gigapixel imaging data using Cytomine. Bioinformatics (Oxford, England), 32(9), 1395.

Calì C, et al. (2016) Three-dimensional immersive virtual reality for studying cellular compartments in 3D models from EM preparations of neural tissues. The Journal of comparative neurology, 524(1), 23.

Greene MJ, et al. (2016) Analogous Convergence of Sustained and Transient Inputs in Parallel On and Off Pathways for Retinal Motion Computation. Cell reports, 14(8), 1892.

Van Vliet K, et al. (2016) Citizen Science Initiatives: Engaging the Public and Demystifying Science. Journal of microbiology & biology education, 17(1), 13.

Engert F, et al. (2014) The big data problem: turning maps into knowledge. Neuron, 83(6), 1246.