Resource Summary Report

Generated by dkNET on May 28, 2025

HelioScan

RRID:SCR_004494
Type: Tool

Proper Citation

HelioScan (RRID:SCR_004494)

Resource Information

URL: https://wiki-bsse.ethz.ch/display/HSC/HelioScan+Home

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Description: HelioScan is a versatile control software for microscopes written in the intuitive graphical programming language LabVIEW. It solves a number of problems observed with custom-built image acquisition systems by providing the following features: * Extendability: both hardware components and software functionality are encapsulated in exchangeable, software components. Additional components can be implemented easily and plugged in at run-time. Components can be independently developed, allowing multiple developers to work in parallel. * Flexibility: Components are independently configurable; each component can have an unlimited number of configurations. * Understandability: The LabVIEW code is well-structured, commented and documented. * High speed: The software supports FPGA-based hardware that enables intelligent and extremely fast signal acquisition and generation. FPGA logic can be easily programmed using LabVIEW. * Tailored to in vivo brain imaging: The software is especially suited for 2-photon Calcium imaging, but can in principle be used for any kind of microscopy. The out-of-the-box software supports different imaging modalities (camera, galvanometric scan mirrors, acusto-optic deflectors) and imaging modes (camera video acquisition, intrinsic optical imaging, two-photon frame scan and tilted frame scan, 2D line scan, 3D spiral scan) and can easily be extended to other imaging modalities (e.g., resonance scanners), imaging modes (e.g., 2D and 3D arbitrary line scans) and associated hardware (e.g., stimulation devices). * Open file-format with extensible meta-data schema: HelioScan saves data in the OME-TIFF file format, which contains image data as multipage TIFF and meta-data as human-readable XML in the TIFF description tag according to the OME schema.

Abbreviations: HelioScan

Synonyms: Helio Scan

Resource Type: software resource

Keywords: microscopy, two photon, calcium imaging, light microscopy, multiphoton imaging protocol, calcium(2+), imaging, brain, brain imaging

Funding:

Resource Name: HelioScan

Resource ID: SCR_004494

Alternate IDs: nlx_143787

Record Creation Time: 20220129T080224+0000

Record Last Update: 20250525T030826+0000

Ratings and Alerts

No rating or validation information has been found for HelioScan.

No alerts have been found for HelioScan.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 11 mentions in open access literature.

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

McNulty P, et al. (2024) CRASH2p: Closed-loop Two Photon Imaging in Freely Moving Animals. bioRxiv : the preprint server for biology.

Wu Y, et al. (2023) Chronic in vivo imaging defines age-dependent alterations of neurogenesis in the mouse hippocampus. Nature aging, 3(4), 380.

Silva-Prieto ML, et al. (2023) Activity in Barrel Cortex Related to Trace Eyeblink Conditioning. eNeuro, 10(8).

Brandalise F, et al. (2022) Dendritic Branch-constrained N-Methyl-d-Aspartate Receptor-mediated Spikes Drive Synaptic Plasticity in Hippocampal CA3 Pyramidal Cells.

Neuroscience, 489, 57.

Schoenfeld G, et al. (2021) In Vivo Calcium Imaging of CA3 Pyramidal Neuron Populations in Adult Mouse Hippocampus. eNeuro, 8(4).

Ayaz A, et al. (2019) Layer-specific integration of locomotion and sensory information in mouse barrel cortex. Nature communications, 10(1), 2585.

Karagyozov D, et al. (2018) Recording Neural Activity in Unrestrained Animals with Three-Dimensional Tracking Two-Photon Microscopy. Cell reports, 25(5), 1371.

Keller AJ, et al. (2017) Stimulus relevance modulates contrast adaptation in visual cortex. eLife, 6.

Bethge P, et al. (2017) An R-CaMP1.07 reporter mouse for cell-type-specific expression of a sensitive red fluorescent calcium indicator. PloS one, 12(6), e0179460.

Brandalise F, et al. (2016) Dendritic NMDA spikes are necessary for timing-dependent associative LTP in CA3 pyramidal cells. Nature communications, 7, 13480.

Chen JL, et al. (2013) Online correction of licking-induced brain motion during two-photon imaging with a tunable lens. The Journal of physiology, 591(19), 4689.