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P080-H.06 Data analysis and software - part I

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H027 - Brain* 2.0 – Indexing, interactive mining and visualization of dynamically growing neuroanatomical imaging data collections in the web.

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Structuring large neuroscientific data collections for making them accessible and easily minable in- and outside the lab is an important building block to unlock the full potential of acquired data, accelerating finally experiment design and further scientific insight.

Brain* (see Braingazer.org) is a mature software framework that has been developed over the past decade to support Brain Atlas Building and image based neural circuit research. The framework has been initially designed to support information retrieval and knowledge discovery in large and dynamically growing data sets of confocal images and related annotated structures registered to standard templates of the CNS of the adult drosophila.

Here, we present Brain* 2.0, addressing the growing demand for generalization of the framework towards other model organisms and a completely web-based solution for 3D visualization, anatomical and image based queries.

- Fully automated extraction of preview images and hierarchical anatomy based staining / intensity profiles
- Interactive multi-channel 3D Volume Rendering and linked 2D multi planar reformation views along all axes
- Intuitive anatomical queries for images based on staining / intensity profiles
- Web-based visual queries allowing for staining and staining similarity queries in real time on the full image collection.

Currently three instances of the new framework are publically accessible hosting several thousand imaging datasets of zebrafish and adult drosophila brains (Poster by Jenett et al.), as well as drosophila larvae (Poster by Thum et al.) co-registered to respective standard brains.