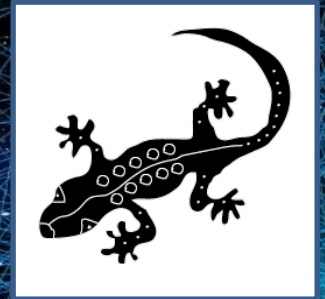




Nutil



Neural Systems Laboratory
University of Oslo, Norway

Pre- and post- processing toolbox for histological rodent brain section images

TECHNOLOGY DESCRIPTION

Nutil is a pre- and post- processing toolbox for analysis of large collections of histological images of rodent brain sections. The software is open access, with a simple graphical user interface for specifying the input and output parameters. Nutil includes a transformation tool for automated scaling, rotation, mirroring and renaming of image files; a file format convertor; a simple resize tool; and a post-processing method for quantifying and localizing labelled features based on a reference atlas of the brain (mouse or rat). The quantification method requires input from customized brain atlas maps generated with the *QuickNii* software, and segmentations generated with *ilastik* or another image analysis tool. It generates reports, point cloud coordinate files, and atlas map images superimposed with colour-coded objects.

Nutil enables transformations of the high-resolution image output of microscope scanners.

Nutil is a key component of the QUINT workflow for quantification and spatial analysis of labelled features in histological rodent brain section images.

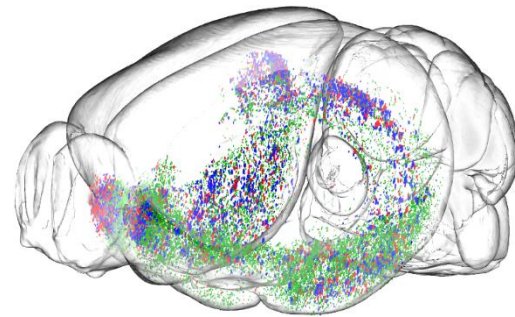
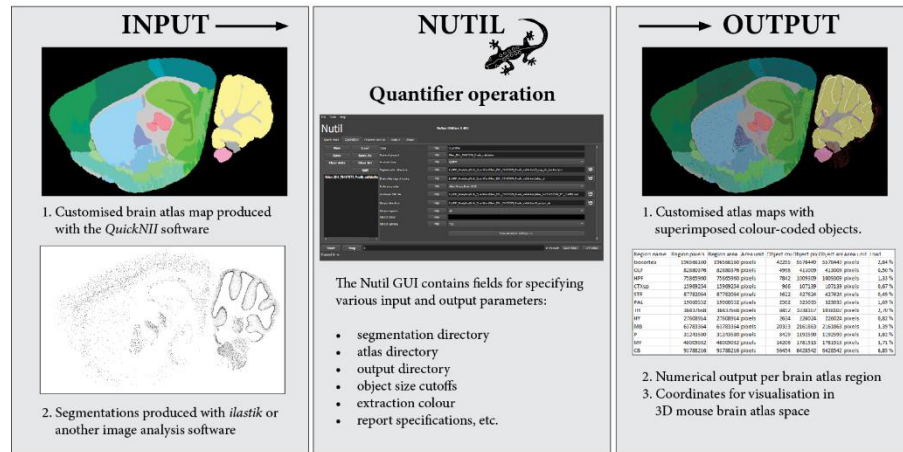
AREAS

Image Analysis | Quantification



COMPETITIVE ADVANTAGES

- Nutil enables comparative studies of whole rodent brains.
- It is user-friendly, with a simple GUI and inbuilt user manual.
- No coding knowledge required to operate in contrast with other tools or scripts freely available.
- Nutil is currently compatible with the following reference atlases:
 - Allen Mouse Brain Atlas (CCFv3, 2015 and 2017)
 - Waxholm Atlas of the Sprague Dawley rat (v2 and v3)
 - other atlases may be added in future releases



Nutil is user friendly with a simple graphical user interface

TECHNOLOGY READINESS LEVEL



REFERENCES

Yates SC, Groeneboom NE, Coello C, et al. & Bjaalie JG (2019) QUINT: Workflow for Quantification and Spatial Analysis of Features in Histological Images From Rodent Brain. *Front. Neuroinform.* 13:75. doi: 10.3389/fninf.2019.00075
<https://www.nitrc.org/projects/nutil/>

CONTACT

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APPLICATION & MARKET POTENTIAL

- Nutil is tailored specifically for the needs of biological researchers (500-1000 estimated in Europe) working with histological rodent brain section images.
- Nutil is open-access and is being tested by users in the Human Brain Project and the Kaczorowski Lab at The Jackson Laboratory (Bar Harbor).