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DeepSlice Automated Alignment

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Protocol status: Working
We use this protocol and it's working

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Aligning Science Across Parkinson's

Abstract

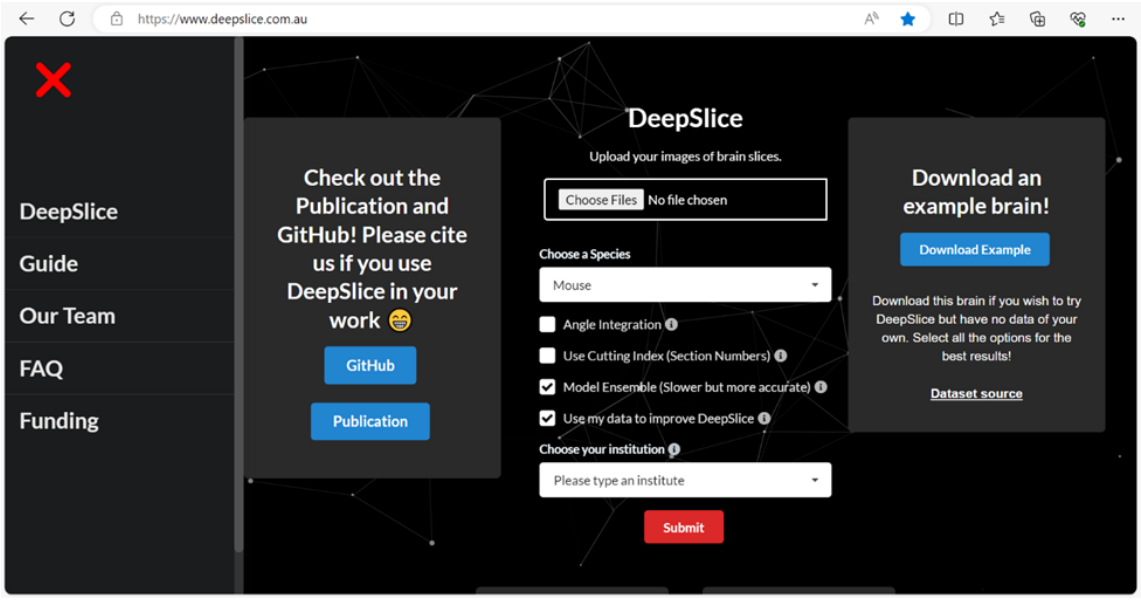
This protocol explains how to use DeepSlice in the Quint Workflow

Before start

DeepSlice is a deep neural network that automatically aligns mouse histology images through the Allen Brain Atlas coordinate framework. Alignments are viewable and refinable in QuickNII and set up sections to give a good starting point near and around each section's correct plane. DeepSlice's alignment is not completely accurate and further fine tuning in QuickNII is necessary. This is a newly developed tool and not imperative for the workflow but helps speed the process of registration and substitutes the FileBuilder step.

DeepSlice Automated Alignment

1 Open **DeepSlice** in your web browser.



2 Select *Choose Files.*
a. Upload all images for registration from the **QVN** folder

3 Ensure *Mouse* is selected for species, and *Model Ensemble* is checked (uses two DeepSlice versions to optimize alignment).
a. Avoid checking *Angle Integration* (this aligns all your brain sections to the same angle, which is inaccurate when blocks have different cutting angles)
b. Avoid checking *Using Cutting Index* (this suggests your sections numbers (_s###) correspond to serial section numbers spaced equally apart)
c. Optional to allow DeepSlice to use your data to improve the neural network and its predictive accuracy.

4 Select **Submit.**

5 After all sections/slices are processed, press Download XML.

6 Insert the downloaded XML (titled by default ‘results.XML’) into your QVN folder with all your images for registration.