

Description of GUI of the 3D model building tool

To facilitate reconstruction process a simple graphical user interface was prepared. Below, the 3dBAR reconstruction GUI with an exemplary CAF dataset loaded ([Johnson et. al., 2010.](#))

Selecting structures

The left panel contains *ontology tree* loaded from CAF index file. One can browse through structures, select them for reconstruction or load already reconstructed, cached models. The right panel contains two tabs. *Structure selection tab* displays detailed information about the currently selected structure for reconstruction. This includes abbreviated and full name of the structure, span of slides on which it is defined as well as color assigned to this structure. Here one can also set the resolution, the depth of decomposition of the structure into substructures according to ontology tree, and mirroring of brain hemisphere may be enabled if needed.

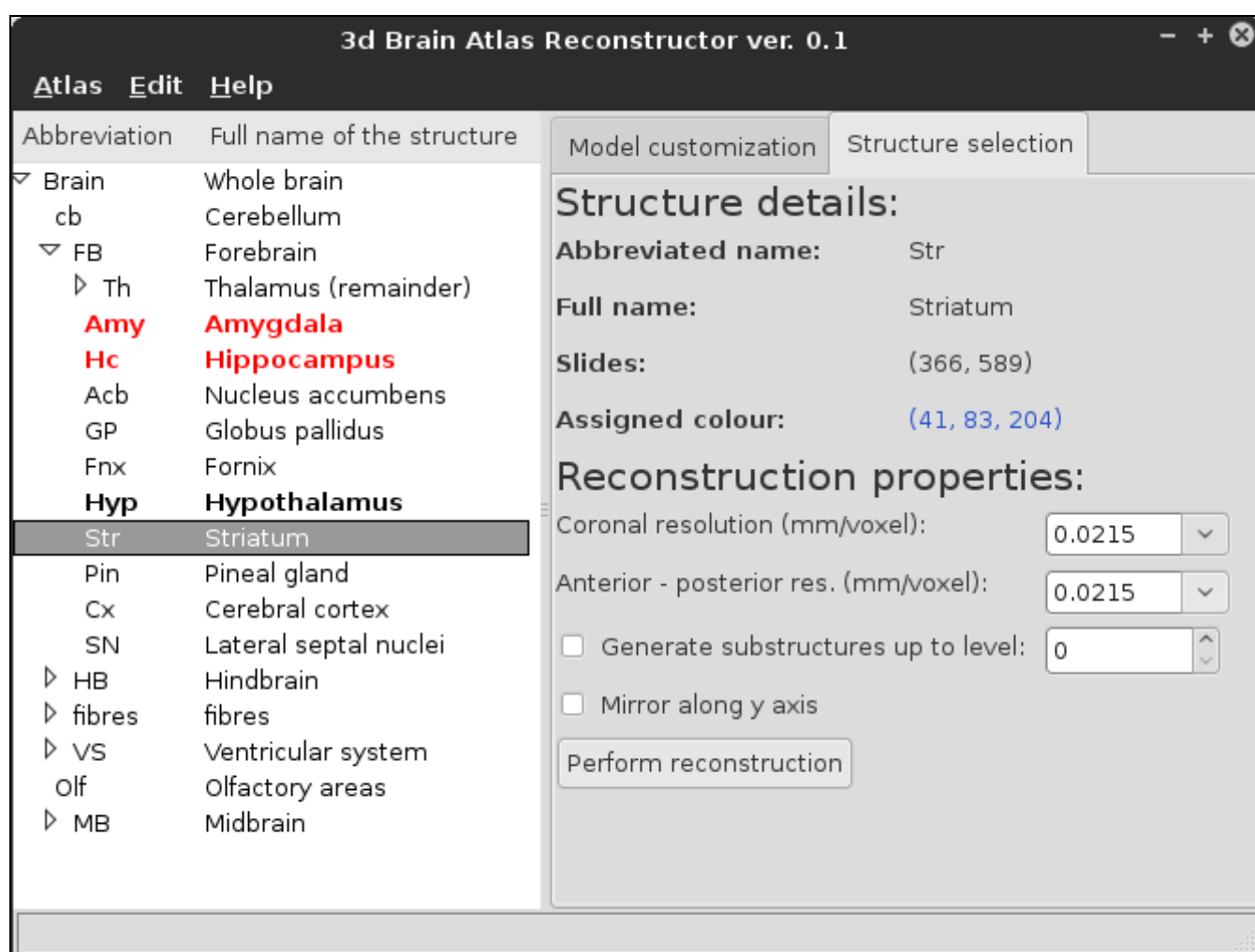


Figure 1: The *structure selection tab*. The *Striatum* selected for reconstruction (gray highlight); *Amygdala* and *Hippocampus* loaded as context models (red font). The reconstruction of *Hypothalamus* is cached and available for loading (bold font).

context, the corresponding element in ontology tree is displayed in red.

Generating multiple reconstructions

Multiple reconstructions can be performed one by one as described above. However, this is convenient only when few models are required. To reconstruct multiple structures one can choose a parent structure containing desired substructures and reconstruct them down to a desired level of detail. All substructures are generated using the same set of reconstruction parameters provided in `Structure selection` tab and the same VTK pipeline. Models are generated one by one and automatically cached. When all the substructures are reconstructed they are loaded into preview window as context models.

Exporting the models

By default models are cached in the directory where CAF dataset is located. One may choose another export directory by selecting *Set cache directory* from *Edit* menu. When cache directory is changed, all currently loaded structures are removed from preview and ontology tree updates information about availability of cached models from the new directory.

3d Brain Atlas Reconstructor GUI offers three ways of exporting three dimensional models. Single reconstructions may be cached as polygonal data ([_vtkPolyData](#)) or exported as volumetric datasets in the native VTK ([_vtkImageData](#)) or (Neuroimaging Informatics Technology Initiative, [NIfTI](#)) formats. Complex scenes containing numerous context models may be exported into (Virtual Reality Modelling Language, [VRML](#)) or [X3D](#) format.