Release Note for Pixyl.Neuro

Version Number
Version 1.6.1

Introduction
Pixyl.Neuro is a web-based software to help diagnosis in neurology and neuroradiology based on brain MRI data. Pixyl.Neuro performs biomarkers extraction for multiple sclerosis, pathologies that affect the white matter in general (Leukoencephalopathy for example), and neurodegenerative diseases (Alzheimer's, Parkinson, etc.). It provides fully automatic brain lesion segmentation, cortical and subcortical structures segmentation, comparison with a normal population, and longitudinal analysis.

Back-end release notes

1.6.1-b5 (2020-06-24)

- Fixed ROI categorization of infra-tentorial lesions
- Fixed the anatomy pipeline for the t1 only case
- Fixed the wmh pipeline for the case where no t1c is provided
- Improved robustness of BV wrt/ the various input combinations

1.6.1-b4 (2020-06-04)

- Improved flair 3D model
- Cuda10-based CNN
- GPU optimized registration

1.6.1-b3 (2020-05-15)

- Improved registration robustness for tilted images
- Remove faint voxel filter

1.6.1-b2 (2020-04-25)

- Removed out-of-brain hyperintensities by masking with the biggest connected component of the brain parcellation
- Increased the periventricular filter threshold from 1.5 mm to 3 mm

1.6.1-b1 (2020-04-01)

- Transform manager to handle automatically internal transformations between different spaces. Also brings automatic chaining of affine transforms to reduce blurring
- Moved from ANTs to NiftyReg for image registration, for improved reproducibility

- Better input modality checking and image quality control, with cleaner exit upon error (generation of a computer readable status file for use in the front end)
- New segmentation algorithms, for lesions and tissues, based on DeepMedic CNN-based library
- NVidia GPU acceleration
- DICOM input
- Segmented DICOM output
- 2D Screenshots for inclusion in reports, with smart slice selection optimizing the brain coverage and lesion display
- Crop the brain to the biggest component to avoid outlying artifacts
- Removal of many post processing filter and finetuning of the small lesions and faint voxel filters
- Azure deployment
- Comparison with GT if provided (dice, LTPR, LFDR)
- Refactoring of brain volumetry, using new atlases
- Intracranial volume estimation
- Dropped lesion load
- Disabled lesion division

Front-end release notes

1.6.1-b6 (2020-07-09)

- Internationalization
- Reports redesign
- Improved quality control in the Report
- New Longitudinal API
- Improved resource management
- Splashscreen

Release Authorised by

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