LORIS: API development and documentation

GSOC 2020

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GSOC Proposal

- Improvement of existing API endpoints and solving priority issues for API infrastructure

- Develop new workflow templates

- Creating new endpoints for modules of Loris

- Writing the documentation

- Provide comprehensive tutorials in Jupyter notebooks as examples of how to use the API new endpoints

Improvement of existing API endpoints

Merged PRs

- [PR #6601](#) - API Test Plan
- [PR #6672](#) - API Bugs fix

Approved PRs

- [PR #6671](#) - Creation of a new test suite (integration tests)
  - 44 endpoints tested (557 assertions)
  - 16 endpoint tests skipped because of missing data ([Issue #6909](#)) in docker environment

New endpoints

In progress

- [PR #6775](#) - New endpoint for Projects Dicoms

- [PR #6905](#) - Add missing files paths to attributes list

- [PR #6899](#) - New features for Dicoms and images endpoints

Jupyter notebooks

In progress

- [PR #6854](#) - Intro to the LORIS API [LORIS-API_Part1-HTTP](#)

- [PR #6854](#) - How to use Endpoints with Python [LORIS-API_Part2-Python-endpoints-test](#)

- [PR #6890](#) - Creation of imaging datasets [LORIS-API_Part3-Create_image_dataset](#)
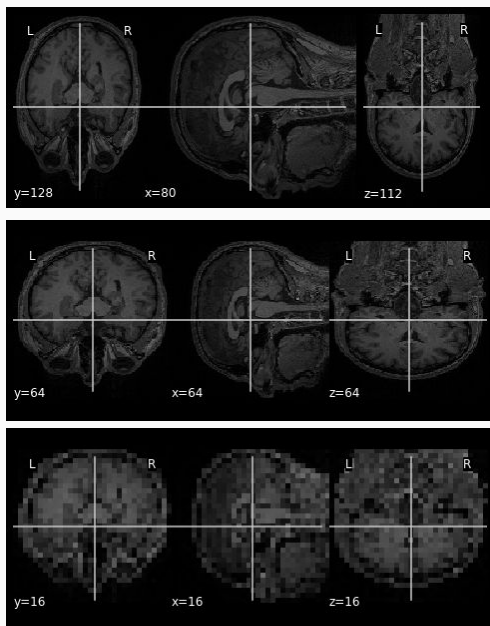
What's next?

- Verify the skipped tests when RB data can be uploaded in Docker

- Create new endpoints

- Test / Update electrophysiology endpoints to include iEEG handling

- Writing the documentation

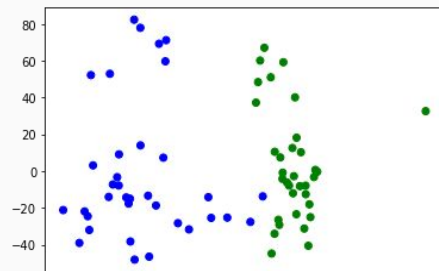# Example of preliminary analysis: Imaging

Images dimensions

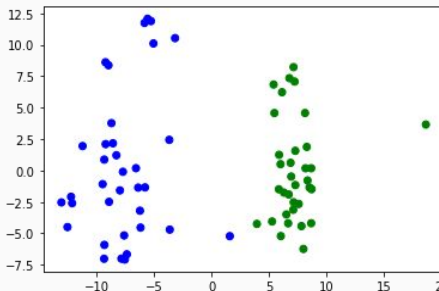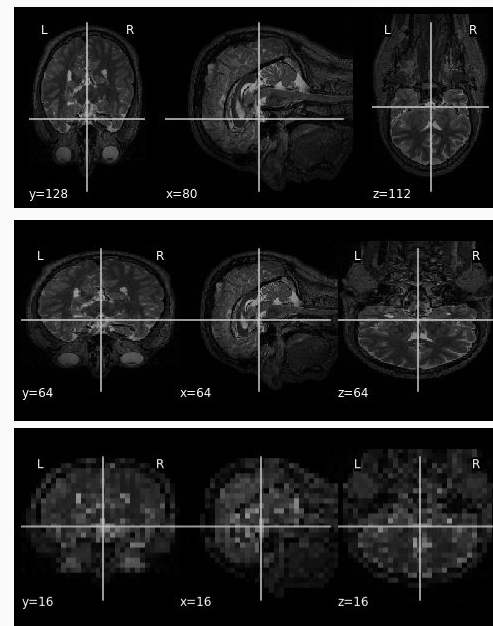(160, 256, 224) (128, 128, 128) (32, 32, 32)

T1

T2

A

B

Fig. 1 - (A) PCA of T1 (blue) and T2 (green) images reduced to 128x128x128 voxels. (B) PCA of T1 (blue) and T2 (green) images reduced to 32x32x32 voxels. (Python package used for PCA: sklearn)

Packages to display fMRI images: nibabel, nilearn
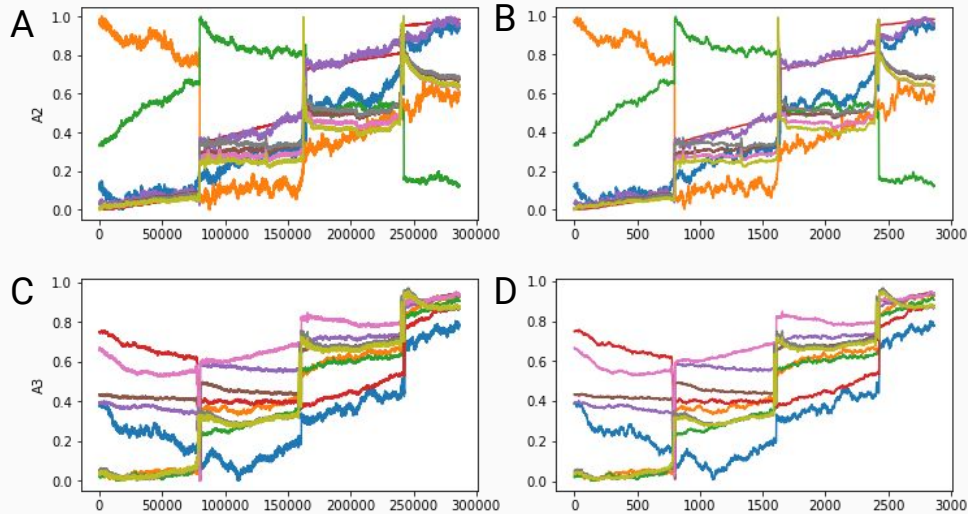
Example of preliminary analysis: Electrophysiology

Fig. 2 - (A) Raw EEG signal from channel A2 from 10 samples. (B) Same EEG signal from channel A2 reduced 100-fold. (C) Raw EEG signal from channel A3 from 10 samples. (D) Same EEG signal from channel A3 reduced 100-fold.
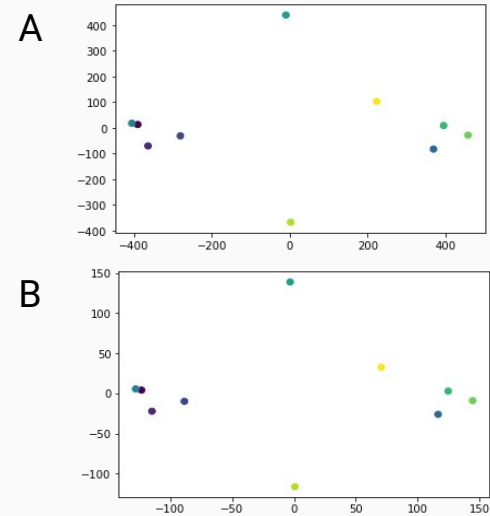

Fig. 3 - (A) PCA of EEG signals from 10 samples reduced 10-fold. (B) PCA of EEG signals from 10 samples reduced 100-fold.

Thanks for your attention!