

Feedback on Brainhack OHBM + presentation Brainhack Marseille

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RMN 10 November 2022

Brainhack OHBM

Facts and figures

- 16-18 June 2022 in Glasgow
(just before the main OHBM conference)



Brainhack OHBM

Facts and figures

- 16-18 June 2022 in Glasgow
(just before the main OHBM conference)
- 150 people, with 120 people on site,
including (at least) some people from:
 - AFNI
 - SPM
 - BIDS
 - datalad
 - clinica
 - ... and many other neuroimaging
softwares



Brainhack OHBM

Organisation :

- Use of **discord** (instead of mattermost for communication). General topics channel, and channels dedicated to each project

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Front (please feel free to add your hidden location)

Project_name
Physiopy (Sarah/Stefano)

Project_name
- nibabel-types

Project_name
- Browbids
- watts_up_compute
- brainlife.io

Project_name
AHEAD brains

Project_name
ChRIS Research Integration Service

Project_name
-

exit

Project_name

Project_name
BIDS prov
SPypeM

Project_name
- NiMARE

Project_name
- [NiiVue](#)
- FLUX
(will be
back at
4pm)
- AFNI

Neuroscout

Project_name
Pydra, nobrainer

MRIQC
- Mohammad
- Jacob
- Ty
-

1st floor

Nilearn
introduction -
Alexis thual

Project_name

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Project pitches: ~ 25 projects, among others:

- Niivue ; Nifti viewer for mobile, tablet, desktop, web.
- Physiopy : best practice for physio MRI setups
- browbids : Pybids for running python in browsers
- NoBrainer : deep learning zoo
- BLMM-py : Mass-Univariate Linear Mixed Models
- NARPS : open pipeline database

Data visualisation

Wiki / Expert recommendations

Format / Software development

Methodology / Software dev

Statistics

Open science / Pipelining

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- Early morning, and end of afternoon: some talks, and **unconferences**

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Unconferences :

(Example: planning for the second day)

Some project reminders, or latest (little) achievements :

- LayNii : high resolution (f)MRI
- wats_up_compute: carbon cost of computation
- neurodesk: full suite of neuroimage tools available desktop

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Unconferences :

(Example: planning for the second day)

Some project reminders, or latest (little) achievements **and raised issues:**

- LayNii : high resolution (f)MRI
- wats_up_compute: carbon cost of computation
- neurodesk: full suite of neuroimage tools available desktop
- **to hybrid or not to hybrid → how to merge in person and online people ?**

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- Last day : **final wrap-up** = what was accomplished during the brainhack

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Final wrap-up (example of BIDS Prov)

BIDS Prov BrainHack

a provenance framework for BIDS

Camille Maumet Satrajit Ghosh, Ryan Cali, Dorota Jarecka, Chris Markiewicz, Omar El Rifai, Ghislain Vaillant

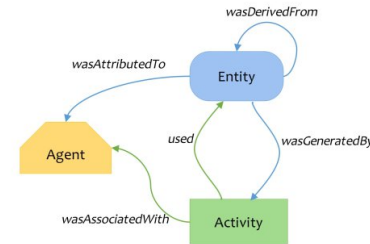


Why Provenance

- Tracking information about neuroimaging data
- Chronologically interrelate entities using unique identifier
- Help reproduce the outcome of an experiment

Current Status

- Draft of Specification as a BIDS extension proposal ([BEP028](#))
- Based on w3c prov ontology (classes, properties, and restrictions) to represent and interchange provenance information



The three Starting Point classes of the prov ontology and the properties that relate them



- ✓ Provide complete examples for some BIDS Derivatives
- ✓ Propose updates to the specs as needed
- ✓ Get community feedback on the overall proposal in order to submit a final version

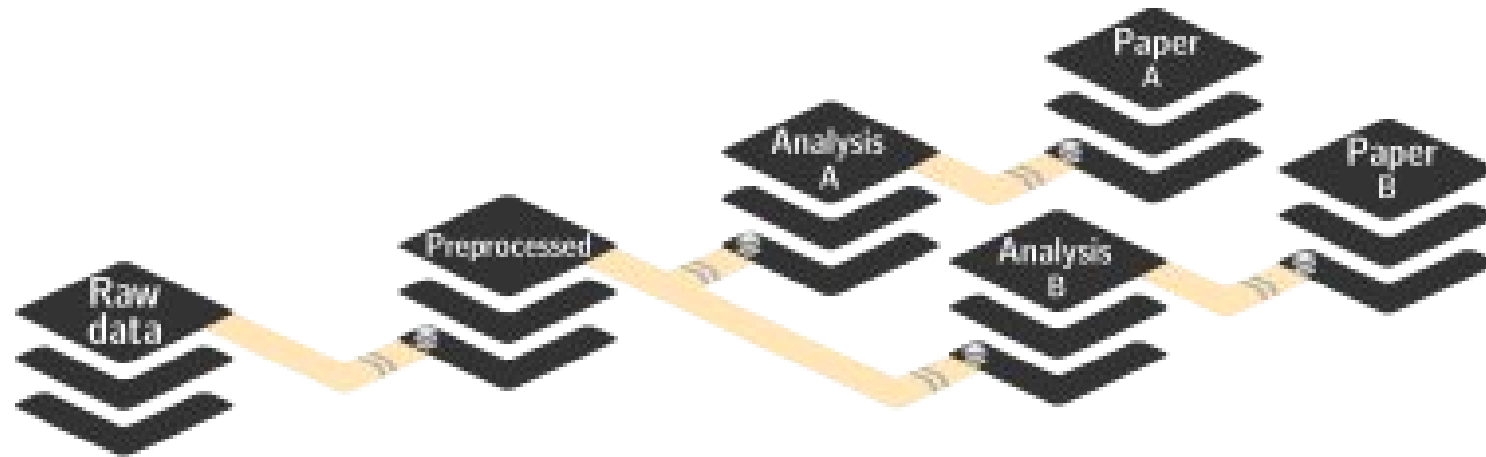
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Brainhack Focus

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Focus on **DataCat** (Stephen Heunis, Julich RC)

- Datalad is a way to add version from a dataset



Nest modular datasets to create a linked hierarchy of datasets,
and enable recursive operations throughout the hierarchy

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Focus on **DataCat** (Stephen Heunis, Julich RC)

- Datalad is a way to add version from a dataset
- Datacat (or datalad-catalog) project = how to represent a full dataset with metadata ?
- metadata can be made public (i.e FAIR), but dataset remains private
- see <https://www.youtube.com/watch?v=4GERwj49KFc> for more info

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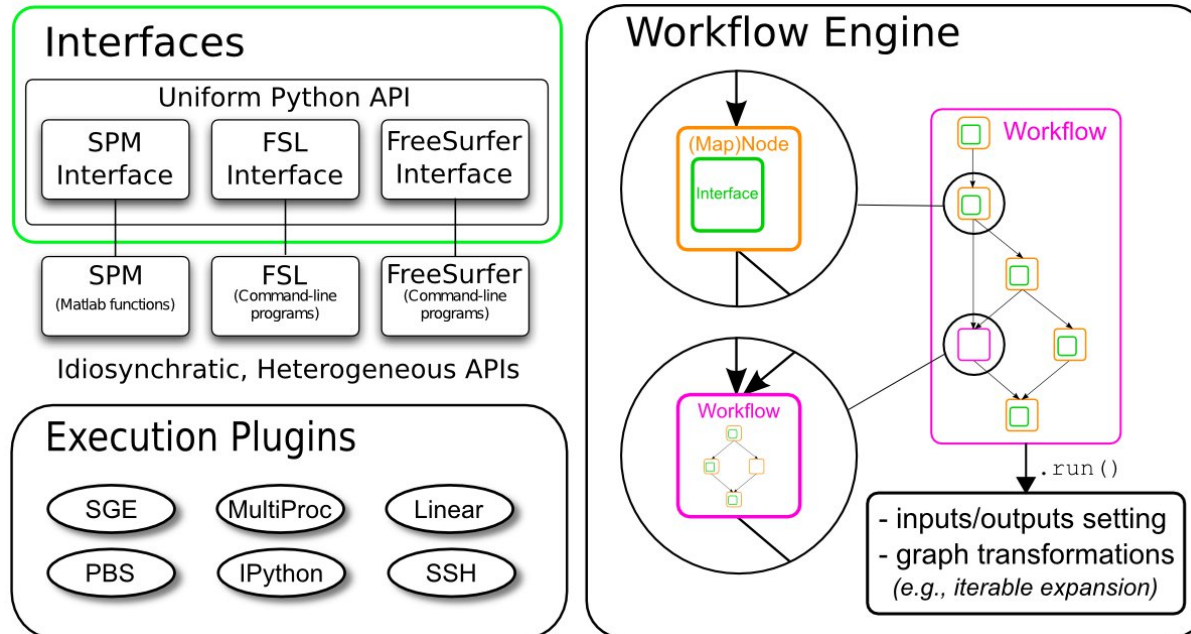
Focus on **BIDS Prov** (clinica team, Ghislain Vaillant; Omar El Rifai, ICM)

- Provenance ~ traceability (like for your food...)
- “this **data** is this other **data**, on which this **process** has been applied”
(e.g this **preprocessed** file is this **raw** file, after this version of **fmriprep** has been applied)
- Purpose of the project = how to store this information in the BIDS specification ?
- Ultimately, with provenance and BIDS specification engine (by Remi Gau) = full reproducibility

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- Round table of ~ 15 people (including people from clinica, Bastien, Maxime and me) + a demo in the afternoon with Ghislain from clinica
- the nipy team is working on the engine, the interfaces are maintained by other developers (i.e. the SPM people will develop the SPM interface)

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- Only code “hack” I did during this 3 days: build a minimal 2-node pipeline and a BIDS data grabber in pydra (in ~1-2 hours)

introducing Brainhack Marseille

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Brainhack Marseille ! Soon to come !



28-30 November at Institut de Neurosciences de la Timone (INT)
TrainTrack (Tools for open science, programming, unconferences)
People from Marseille (INT, INS, CRMBM, LNC, LPC) and others (Brest, Barcelona, UPenn)

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Project Examples :

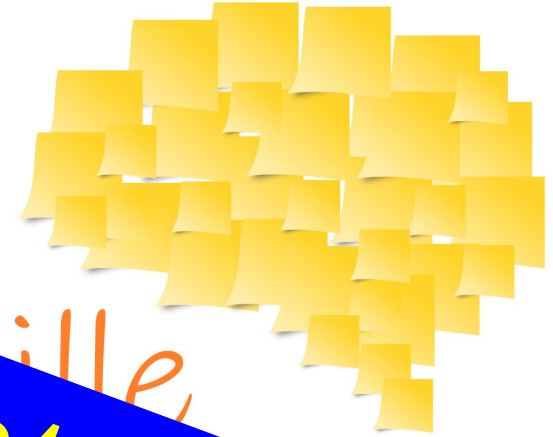
- « Automate your processing pipelines with nipype / pydra » by myself
- « Diffusion tractography in primates » led by Melina Cordeau, with Julien Sein, Arnaud Le Troter, etc.

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Brainhack Marseille ! Soon to come !

Brain Hack

Open collaboration in neuroscience



Thanks for your attention
Questions ?