ORMIR-MIDS

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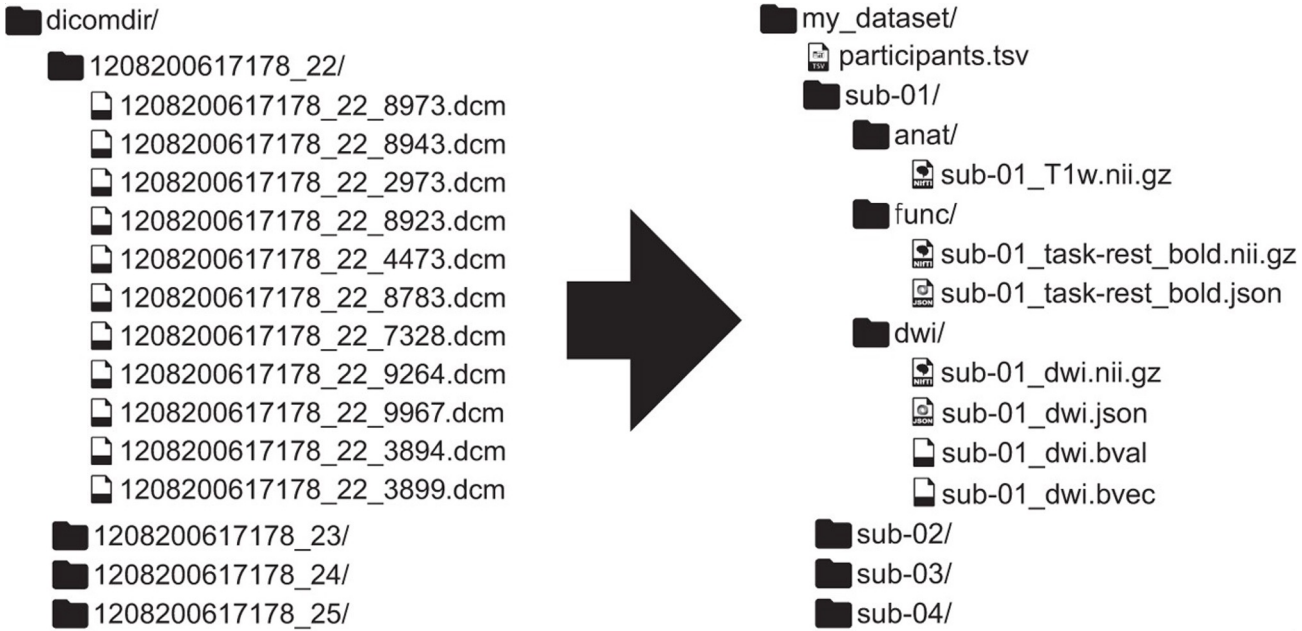
2nd ORMIR workshop

What is BIDS

- From “out of the scanner” to organized folder and file structure

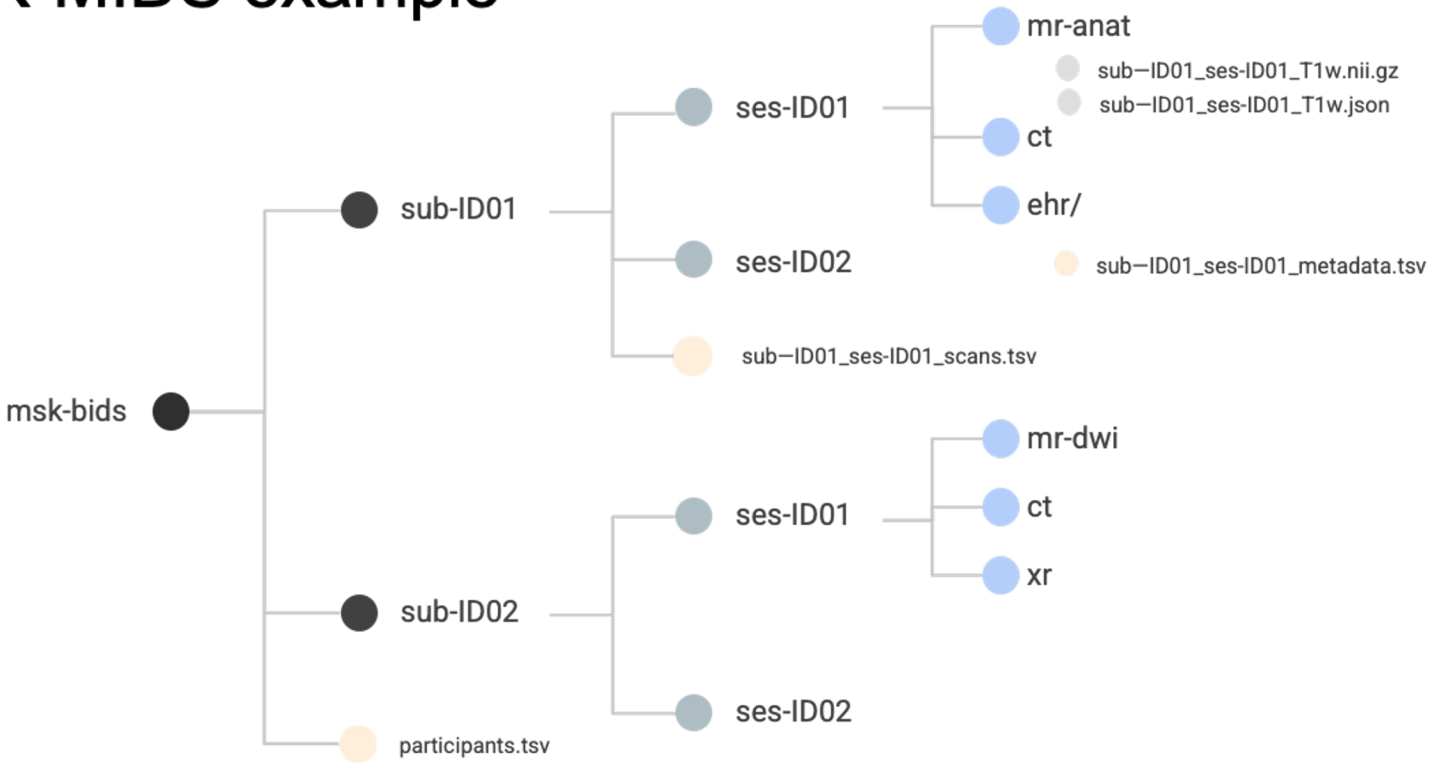


https://www.nature.com/articles/sdata201644

We reached consensus on…

- Name of the package: muscleBIDS → ORMIR-MIDS
  - ORMIR Medical Imaging Data Structure
- Modalities to include: CT (QCT, PC-CT) and CR; HR-pQCT to be added later
- Folder structure
  - Follow bids structure on subject and session levels
  - Structure the imaging modalities as subfolder
    - ct
    - cr
    - mr-anat
    - mr-dwi
- Preferred file format to use for images within workflows
  - Nifti
- How to store health related data
  - add subject ehr_id in participants.tsv
  - If raw data: store under ehr/ subfolder

MSK-MIDS example



Documentation

FOR USERS

- Jupyter notebook
  - Existing: Creating folder structure
  - New: testing the package on a single image github link

FOR DEVELOPERS

- How to create a new converter
  - Template .py file
  - Documentation be on the ORMIR-MIDS website
- How to load .mha data
  - .mha loader .py file
  - .mha conversion into nifti file

```
8  > def load_dicom(path, group_by = None):
14   ... return new_volume
15
16
17 > def load_dicom_with_subfolders(path):
39   ... return [ headers.dicom_volume_to_bids(volume) for volume in med_volumes ]
40
41
42 > def save_dicom(path, medical_volume, new_series = True):
46   ... dicom_writer.save(new_volume, path)
47
48
49 > def load_bids(nii_file):
83   ... return medical_volume
```

read_mha_file(filename)

mha_to_nifti_affine(metadata)

muscleBIDS modifications

- Support for in-memory loading of mha, dicom, Nifti (BIDS).
  - MedicalVolume + header dictionaries python class as internal data structure.
- New modality structures applied in muscleBIDS
  - CR, CT, MRI-anat, MRI-quant
- New converters added to muscleBIDS for CT (conventional CT and PCCT) and CR (computed/digital radiography)
- Header tags for CT, CR
- Added metadata to the group 1 spreadsheet
- Future tasks
  - Reading of 2D images (plain radiography)
  - Continue working with CT (exits silently)
  - Development to be moved to github.com/ormir-mids (from current muscle-bids)