MINIMAL DATA STANDARDS
motion & clinical data

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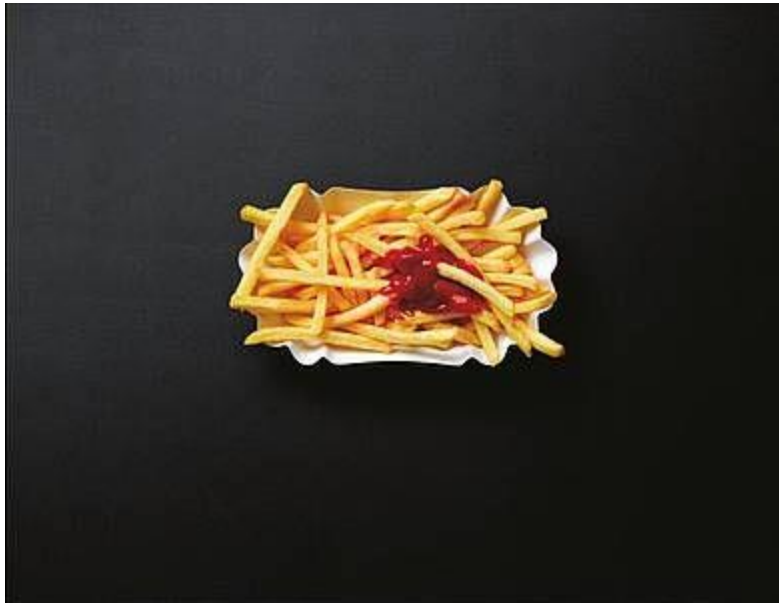
Motivation

- Define standards which can be used across various types of datasets
- Longitudinal, “Subvisits” (T1, home & clinic)
- Flexibel in use with some metadata which can be used for dataprocessing



Types of file

- **Generic** (modality and subject independent)
- **Specific** (per modality but independent of subject)
- **Individual** (per subject)

```
Example1/
├── README.md/txt
├── participants_overview.tsv
├── participants_visit.tsv
├── channels.tsv
├── visits.tsv
└──  sub-COKI10001
        └── motion/
                ├── sub-01_ses-t1_task-Balance_tracksys-Imu_motion.tsv
                └── sub-01_ses-t1_task-Walking_tracksys-Imu_motion.tsv
├──  sub-COKI10002
└──  sub-COKI10003
```

Generic

README.md/.txt

- Minimum:
  1. Dataset name
  2. Author(s)

- Optional:
  1. Institution
  2. DOI
  3. ...

Specific

Visits.tsv

- Minimum:
  1. name
  2. description
- Optional:
  1. Time range
  2. Number participated
  3. …

name	Description
T1	First assessment at first visit
T2	Second assessment at first visit
T3	First assessment at second visit

Specific

channels.tsv

- Minimum:
  1. name
  2. type
  3. unit
  4. component (x,y,z)
  5. sampling_frequenzy
  6. tracked_point

- Optional:
  1. tracking_system
  2. tracked_point_description
  3. starting_time

name	type	component	tracked_point	sampling_frequency	unit
1757_acc_x	ACC	x	Linker Fuß	100	m/s^2
1757_acc_y	ACC	y	Linker Fuß	100	m/s^2
1757_acc_z	ACC	z	Linker Fuß	100	m/s^2
1757_gyro_x	GYRO	x	Linker Fuß	100	deg/s
1757_gyro_y	GYRO	y	Linker Fuß	100	deg/s
1757_gyro_z	GYRO	z	Linker Fuß	100	deg/s
1757_mag_x	MAG	x	Linker Fuß	100	gauss
1757_mag_y	MAG	y	Linker Fuß	100	gauss
1757_mag_z	MAG	z	Linker Fuß	100	gauss
1758_acc_x	ACC	x	Rechter Fuß	100	m/s^2
1758_acc_y	ACC	y	Rechter Fuß	100	m/s^2
1758_acc_z	ACC	z	Rechter Fuß	100	m/s^2
1758_gyro_x	GYRO	x	Rechter Fuß	100	deg/s
1758_gyro_y	GYRO	y	Rechter Fuß	100	deg/s
1758_gyro_z	GYRO	z	Rechter Fuß	100	deg/s
1758_mag_x	MAG	x	Rechter Fuß	100	gauss
1758_mag_y	MAG	y	Rechter Fuß	100	gauss
1758_mag_z	MAG	z	Rechter Fuß	100	gauss
1759_acc_x	ACC	x	Hüfte	100	m/s^2
1759_acc_y	ACC	y	Hüfte	100	m/s^2
1759_acc_z	ACC	z	Hüfte	100	m/s^2
1759_gyro_x	GYRO	x	Hüfte	100	deg/s
1759_gyro_y	GYRO	y	Hüfte	100	deg/s
1759_gyro_z	GYRO	z	Hüfte	100	deg/s
1759_mag_x	MAG	x	Hüfte	100	gauss
1759_mag_y	MAG	y	Hüfte	100	gauss
1759_mag_z	MAG	z	Hüfte	100	gauss

Individual

Participants_overview.tsv

(Independet of visit)

- Minimum:
  1. ID
- Optional:
  1. dob
  2. gender
  3. ...

Participants_visit.tsv

(should match entries in visits.tsv)

- Minimum:
  1. ID
  2. visit
- Optional:
  1. updrs
  2. age
  3. ...

Individual

Required _key-<value>
Optional [_key-<value>]

*motion.tsv

- Minimum:
  1. Filename: `sub-01_[ses-t1]_task-Balance_[tracksys-Imu]_motion.tsv)`
  2. Headers have to match channels.tsv

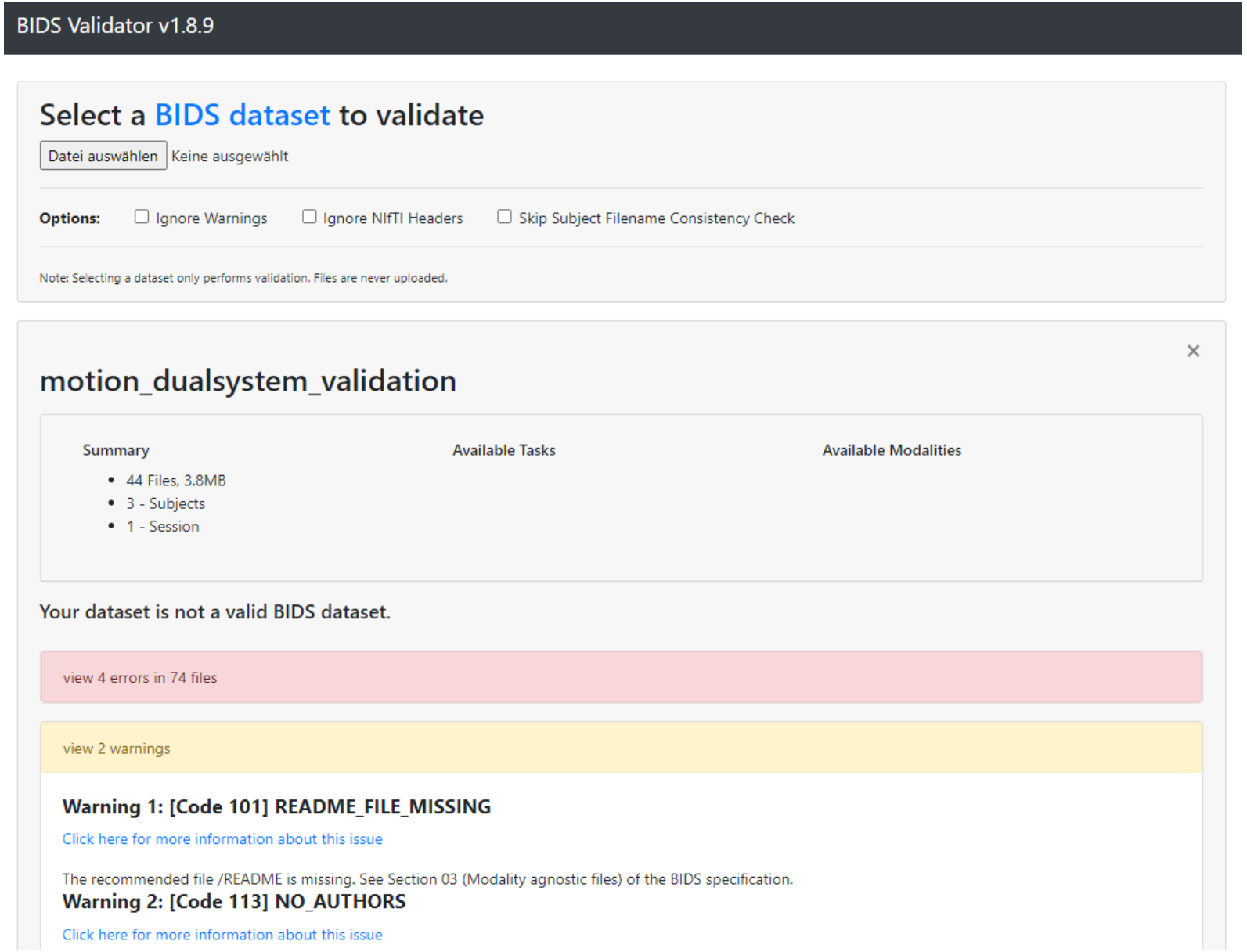
18_acc_x	18_acc_y	18_acc_z	18_gyro_x	18_gyro_y	18_gyro_z	18_mag_x	18_mag_y	18_mag_z	...	...
-33.352	32.202	82.764	0.2395	0.7531	-0.3676	0.4983	-0.054	-0.2762		
-26.308	29.905	89.395	-0.1973	0.5876	-0.4189	0.4983	-0.066	-0.2762		
-29.209	34.508	88.759	0.2361	0.3561	-0.2477	0.5043	-0.0781	-0.2822		
-25.813	31.044	85.272	-0.1347	0.5851	-0.3899	0.5163	-0.06	-0.2762		
-28.058	28.756	88.176	-0.0748	0.6738	-0.5129	0.5103	-0.066	-0.2702		
-30.382	33.358	87.551	-0.2897	0.8965	-0.5979	0.4983	-0.066	-0.2762		
-2.688	27.607	89.378	-0.2895	0.9576	-0.6281	0.5163	-0.066	-0.2642		
-29.878	29.323	83.416	-0.4814	0.8121	-0.7768	0.5103	-0.072	-0.2702		
-30.346	31.637	8.932	-0.0736	0.796	-0.5427	0.5043	-0.06	-0.2882		
-30.373	28.183	87.539	-0.1939	0.7405	-0.3876	0.4983	-0.072	-0.2702		
-31.643	31.046	81.613	0.0562	0.822	-0.3322	0.5103	-0.0781	-0.2942		
...	...	...	...	...	...	...	...	...		

… and the rest?

- Source data
- Scripts/algorithms
- Corrupted datasets

```
Example1/
├ — README.md/txt
├ — sourcedata
├ — scripts
├ — participants_overview.tsv
├ — participants_visit.tsv
├ — channels.tsv
├ — visits.tsv
└ —  sub-COKI10001
├ —  sub-COKI10002
└ —  sub-COKI10003
        └ —  channels.tsv
```

Validation?


BIDS Validator v1.8.9
Select a BIDS dataset to validate
Datei auswählen
Keine ausgewählt
Options:
Ignore Warnings
Ignore NIfTI Headers
Skip Subject Filename Consistency Check
Note: Selecting a dataset only performs validation. Files are never uploaded.
motion_dualsystem_validation
Summary
44 Files, 3.8MB
3 - Subjects
1 - Session
Available Tasks
Available Modalities
Your dataset is not a valid BIDS dataset.
view 4 errors in 74 files
view 2 warnings
Warning 1: [Code 101] README_FILE_MISSING
Click here for more information about this issue
The recommended file /README is missing. See Section 03 (Modality agnostic files) of the BIDS specification.
Warning 2: [Code 113] NO_AUTHORS
Click here for more information about this issue

To do

- Finalize required and optional files & metadata
- Written guideline
- Adapt existing algorithms
- Build validator

- ...?

Thanks for listening carefully