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PET2BIDS: a library for converting Positron Emission Tomography data to BIDS

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Features

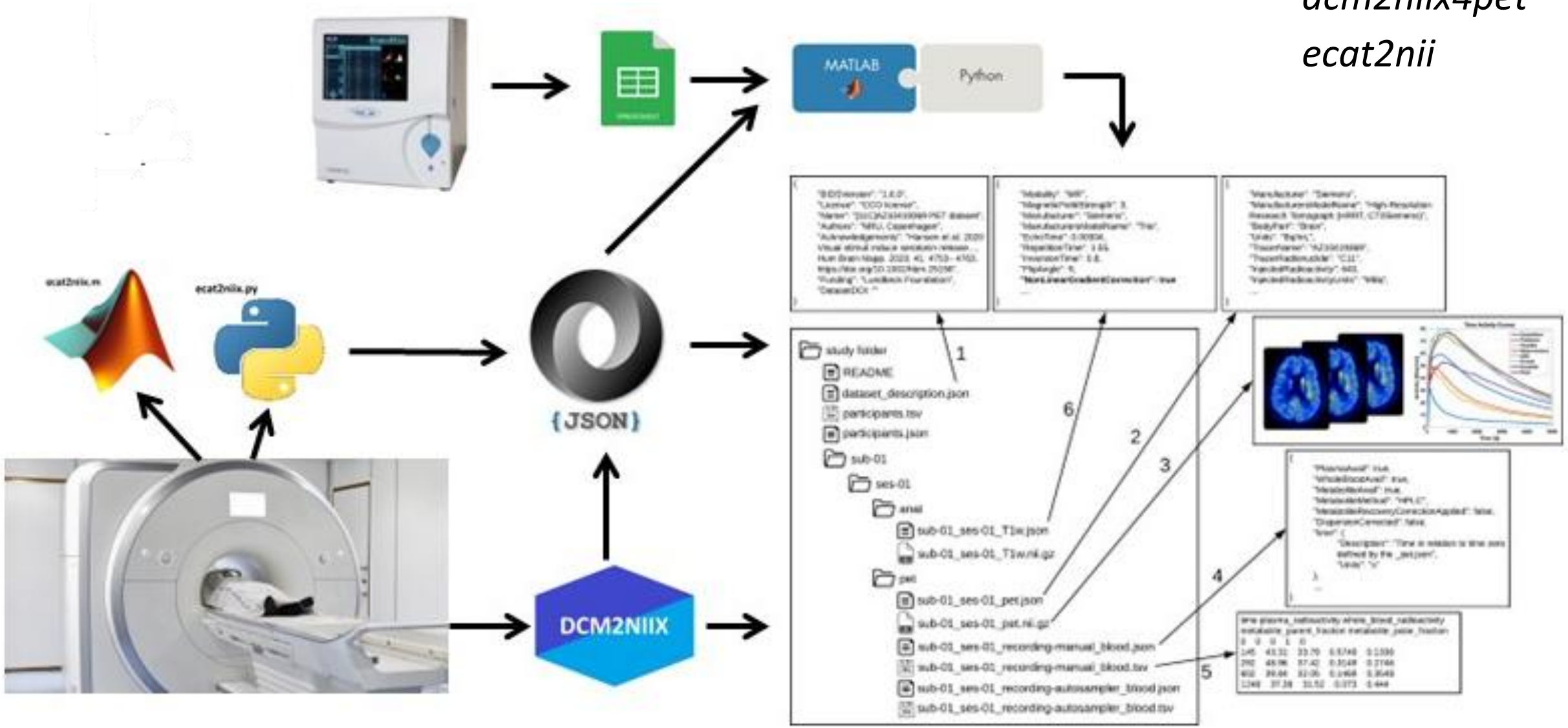
- Matlab and Python
- DICOM and ecat 7+
- Metadata handling
- Blood data conversion

→ the library converts files (.nii .json) and names files following BIDS, you still have to structure your data (folders and the like)

Convert imaging + metadata

dcm2niix4pet

ecat2nii



Update existing json

- *updatejsonpetfile.m or update_json_pet_file.py*

- Internal routines that check and possibly add tracer info (e.g. are all the values consistent with expected units Bq, MBq, GBq, g, ug, mol, umol)
- Validates required, recommended and optional fields
- Apply proper names to ‘identified’ reconstruction method (heuristics)

Update existing json from excel

- Convert preformatted xls, xlsx, csv, tsv

participant_id	InjectedRadioactivity	SpecificRadioactivity	InjectedMass	TimeZero	DecayCorrectionFactor
D:\BIDS\ONP\BIDS-converter\spreadsheet_conversion\many_subjects_sheet\sub-01\pet	397	59,31	1,896978587	13.42.15	
D:\BIDS\ONP\BIDS-converter\spreadsheet_conversion\many_subjects_sheet\sub-02\pet	551	25,28	6,176954114	09.12.12	
D:\BIDS\ONP\BIDS-converter\spreadsheet_conversion\many_subjects_sheet\sub-03\pet	519	50,93	2,887975653	11.15.05	1.017132639884949,1.
D:\BIDS\ONP\BIDS-converter\spreadsheet_conversion\many_subjects_sheet\sub-04\pet	518	19,43	7,555388574	15.45.55	
D:\BIDS\ONP\BIDS-converter\spreadsheet_conversion\many_subjects_sheet\sub-05\pet	469	18,76	7,085	16.12.54	
D:\BIDS\ONP\BIDS-converter\spreadsheet_conversion\many_subjects_sheet\sub-06\pet	496	82,43	1,705282058	12.00.01	
D:\BIDS\ONP\BIDS-converter\spreadsheet_conversion\many_subjects_sheet\sub-07\pet	380	25,57	4,211654282	10.15.05	
D:\BIDS\ONP\BIDS-converter\spreadsheet_conversion\many_subjects_sheet\sub-08\pet	279	42	1,882585714	10.12.36	
D:\BIDS\ONP\BIDS-converter\spreadsheet_conversion\many_subjects_sheet\sub-09\pet	474	29,4	4,569102041	14.25.41	

Blood data

- Convert preformatted xls, xlsx, csv, tsv and bld (PMOD) to blood.tsv and blood.json

A	B	C	D	E	F	G	H
time_manual	manual_whole_blood	manual_plasma	manual_parent_fraction	hplc_recovery_fractions	metadata	time_autosampler	autosampler_whole_blood
5	2,60382574	2,60382574	2,420287093		MetaboliteMethod	0,1	0,180671235
10	1.510.878.819	2,451232644	2,019122324		HPLC	0,2	0,123157239
20	1.250.953.944	2,728974882	1,333615366		MetaboliteRecoveryCorrectionApplied	0,3	0,138270829
40	1.302.358.278	2,930876454	0,713756301		FALSE	0,4	1,558636644
60	1.363.570.232	3,29203593	0,409445452		DispersionCorrected	0,5	12,60661968
					FALSE	0,6	21,64232847
						0,7	28,26041243
						0,8	25,73260612
						0,9	19,43028869
						1	15,76389758
						5	2,60382574
						5,1	1,412707529
						5,2	1,550802421
						5,3	1,983530331
						5,4	1,282172444

Blood data

time plasma_radioactivity whole_blood_radioactivity metabolite_parent_fraction metabolite_polar_fraction

0	0	0	1	0
145	43.31	33.79	0.5749	0.1336
292	48.96	37.42	0.3149	0.2746
602	39.84	32.05	0.1469	0.3548
1248	37.38	31.52	0.073	0.444
1785	36.40	28.83	0.078	0.429
2390	33.13	26.32	0.061	0.453
3059	30.83	25.22	0.049	0.473
4196	27.28	21.98	0.036	0.503
5407	22.70	19.49	0.032	0.523
7193	19.71	15.70	0.02	0.559


```
{
   "PlasmaAvail": true,
   "WholeBloodAvail": true,
   "MetaboliteAvail": true,
   "MetaboliteMethod": "HPLC",
   "MetaboliteRecoveryCorrectionApplied": false,
   "DispersionCorrected": false,
   "time": {
      "Description": "Time in relation to time zero defined by the _pet.json",
      "Units": "s"
   },
   "plasma_radioactivity": {
      "Description": "Radioactivity in plasma samples. Measured using COBRA counter.",
      "Units": "kBq/mL”,
.....
   }}
```