Open Simulated 4D PET Data

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Examples of Open Simulated PET Datasets

1. OncoPET_DB web page: https://www.creatis.insa-lyon.fr/oncoPET_DB

Tomei S, Reilhac A, Visvikis D, *et al*. **OncoPET_DB: A freely distributed database of realistic simulated whole body 18F-FDG PET images for oncology**. *IEEE Trans Nucl Sci*. 2010;57(1):246-255.

Le Maitre A, Segars WP, Marache S, et al. **Computed data, that describes the anatomy and breathing-motion of individual cancer patients, is used to increase the realism of computer models that represent the patients bodies**. *Proceedings of the IEEE*. 2009;97(12):2026-2038.

2. PET-SORTEO (Simulation Of Realistic Tridimensional Emitting Objects) **Database**: http://sorteo.cermep.fr
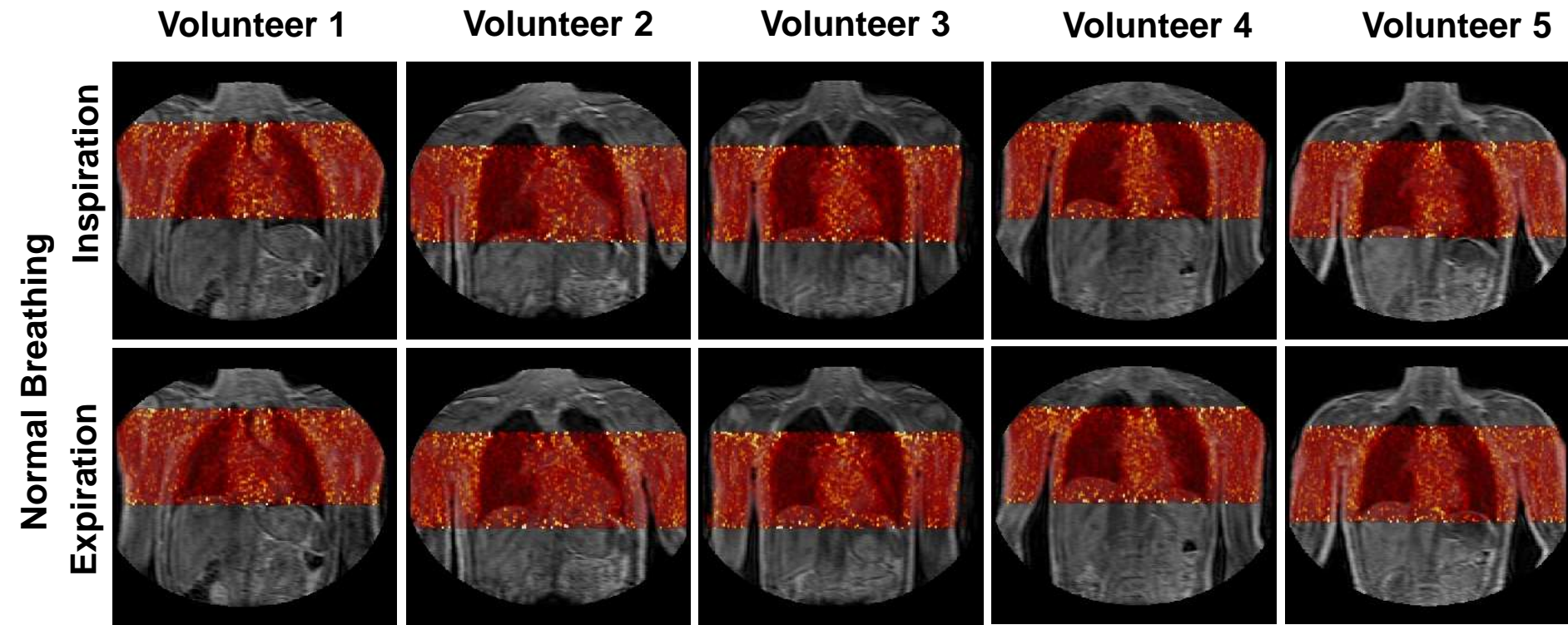
Reilhac A, Batan G, Michel C, *et al* 2005 **PET-SORTEO: Validation and development of database of simulated PET volumes** *IEEE Trans. Nucl. Sci.* **52** 1321-8

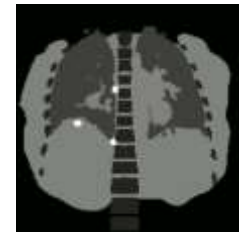# Open Access Simulated PET-MR Datasets Based on Real MR Acquisitions

http://www.isd.kcl.ac.uk/pet-mri/simulated-data

FAST: Fast Analytic Simulation Technique

4D Phantom Data Available (1)

1. Dynamic MR acquisition/derived motion fields

2. MR segmentations: **tissue**, **lungs**, **liver**, **kidneys**, **bones**

3. FDG and attenuation values (in 4D)

Buerger C, Tsoumpas C, Aitken A, *et al*. **Investigation of MR-based attenuation correction and motion compensation for hybrid PET/MR**. *IEEE Trans Nucl Sci*. 2012. doi:10.1109/NSSMIC.2011.6153668

FAST Simulated Data Available (2)

1. MR acquisitions
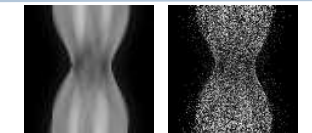
2. MR segmentations

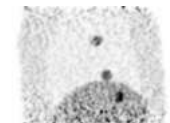3. FDG and attenuation values

4. MR derived motion fields (10 gates)

5. Simulated projection data (with Poisson noise)

6. 100 motion corrected reconstructed images

Polycarpou I, Tsoumpas C, Marsden PK. **Analysis and comparison of two methods for motion correction in PET imaging**. *Med Phys*. 2012;39(10):6474-6483.

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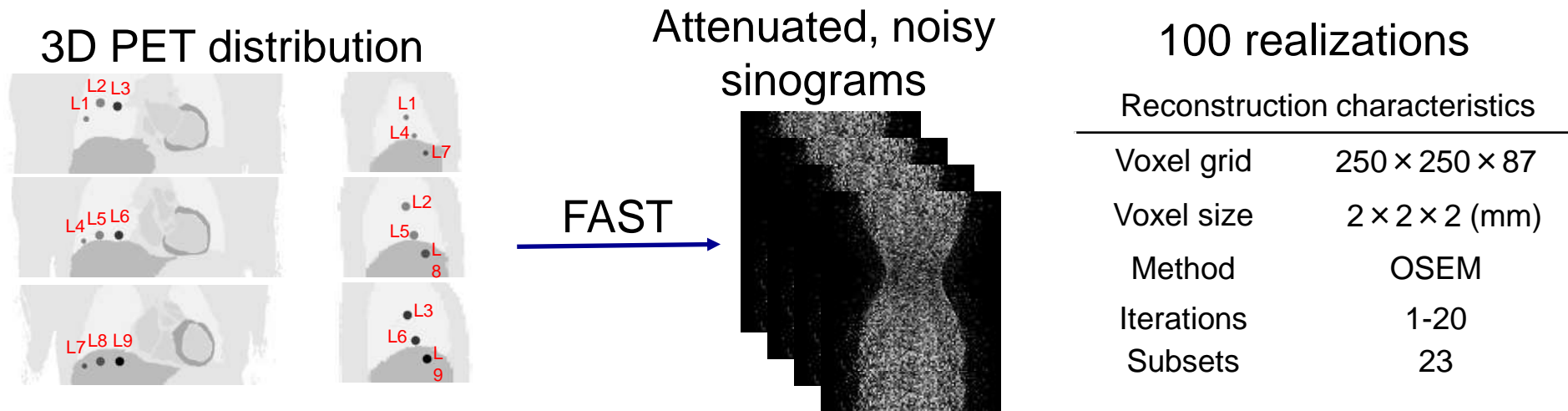
Matt Munro

Request Data From:
Charalampos.Tsoumpas AT kcl.ac.uk

Additional Information

3D PET distribution

FAST →

Attenuated, noisy sinograms

100 realizations

Reconstruction characteristics	
Voxel grid	$250 \times 250 \times 87$
Voxel size	$2 \times 2 \times 2$ (mm)
Method	OSEM
Iterations	1-20
Subsets	23

Polycarpou I, Tsoumpas C, Marsden PK. **Analysis and comparison of two methods for motion correction in PET imaging**. *Med Phys*. 2012;39(10):6474-6483.