Synthetic and Phantom MR Images for Determining Deformable Image Registration Accuracy (MRI-DIR)

Summary

> **Redirection Notice**
>
> This page will redirect to https://www.cancerimagingarchive.net/collection/mri-dir/ in about 5 seconds.

Two sets of images were created to evaluate deformable image registration accuracy. The first set contains CT, T1-, and T2-weighted images from a porcine phantom. The phantom was implanted with ten 0.35 mm gold markers and then immobilized in a plastic container with movable dividers. The porcine phantom was compressed in 4 different ways and images were acquired in each position. The markers were visible on the CT scans but not the MR scans due to the selected voxel size. Therefore, the markers do not interfere with the registration between MR images and the marker locations can be obtained from the CT images to determine accuracy. The second set of images are synthetic images derived from 28 head and neck squamous cell carcinoma patients who had pre-, mid-, and post-radiotherapy treatment MR scans. From these patients, inter- and intra-patient models were created. Four synthetic pre-treatment images were created by using the inter-patient model on a selected template patient. Four synthetic post-treatment images were created for each synthetic pre-treatment image using the intra-patient model.

Data Access
Data Access

Some data in this collection contains images that could potentially be used to reconstruct a human face. To safeguard the privacy of participants, users must sign and submit a TCIA Restricted License Agreement to help@cancerimagingarchive.net before accessing the data.

Data Type	Download all or Query/Filter	
Images and Radiation Therapy Structures (DICOM, 1.4 GB)	*Download Search* (Download requires the NBIA Data Retriever)	TCIA Restricted
Deformation Vector Fields (MATLAB, 1.7 GB)	*Search*	CC BY 3.0

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Detailed Description
Detailed Description

Collection Statistics	
Modalities	CT, MR, RTSTRUCT, Matlab
Number of Patients	9
Number of Studies	25
Number of Series	61

Number of Images	3596
Image Size (GB)	1.4

Citations & Data Usage Policy

Citations & Data Usage Policy

Users must abide by the TCIA Data Usage Policy and Restrictions. Attribution should include references to the following citations:

ⓘ **Data Citation**

Ger, R.B., Yang, J., Ding, Y., Jacobsen, M.C., Cardenas, C.E., Fuller, C.D., Howell, R.M., Li, H., Stafford, R. J., Zhou, S., & Court, L. (2018). **Data from Synthetic and Phantom MR Images for Determining Deformable Image Registration Accuracy (MRI-DIR) (Version 1)**. The Cancer Imaging Archive. DOI: https://doi.org/10.7937/K9/TCIA.2018.3f08iejt

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ⓘ **Publication Citation**

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ⓘ **TCIA Citation**

Clark, K., Vendt, B., Smith, K., Freymann, J., Kirby, J., Koppel, P., Moore, S., Phillips, S., Maffitt, D., Pringle, M., Tarbox, L., & Prior, F. (2013). **The Cancer Imaging Archive (TCIA): Maintaining and Operating a Public Information Repository.** In Journal of Digital Imaging (Vol. 26, Issue 6, pp. 1045–1057). Springer Science and Business Media LLC. https://doi.org/10.1007/s10278-013-9622-7 PMCID: PMC3824915

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Versions

Version 1 (Current): Updated 2018/06/30

Data Type	Download all or Query/Filter
Images (DICOM, 1.4 GB)	*Download Search* (Download requires the NBIA Data Retriever)
Deformation Vector Fields (MATLAB)	*Search*