DICOM-SEG Conversions for TCGA-LGG and TCGA-GBM Segmentation Datasets (DICOM-Glioma-SEG)

Description

This dataset contains DICOM-SEG (DSO) conversions of the Segmentation Labels and Radiomic Features for the Pre-operative Scans of the TCGA-LGG collection and Segmentation Labels and Radiomic Features for the Pre-operative Scans of the TCGA-GBM collection analysis datasets.

The MR volumes and segmentations provided in the original segmentation datasets (T1 pre-contrast, T1 post-contrast, T2, FLAIR) are in NIfTI format, co-registered to an atlas space, and re-sampled to 1mm isotropic resolution. This dataset contains DICOM-SEG versions of the same segmentations, transformed back into the original patient resolutions and orientations found in the TCIA's TCGA-GBM and TCGA-LGG datasets. This allows users to extract features from MR sequences without introducing interpolation artifacts from isotropic resampling.

The process for creating these DSO objects is as follows. Patient data from the original NIfTI datasets were registered and resampled from isotropic space to patient space and resolution using 3DSlicer's BRAINSFit module . The affine transformation files from these registrations are used to register and resample both the semi-automatic and automatic NIfTI segmentations into the spaces of each original MR DICOM dataset. These transformed NIfTI segmentations are then converted into DICOM-SEG datasets using the software package dcmqi . Because each MR sequence has a unique patient space and resolution, the resulting dataset contains four DSO segmentations for each original NIfTI segmentation.

Included in this dataset are the converted DSO volumes, DSO metadata values used in the DSO conversion program dcmqi, and affine transformation files from isotropic space to the original patient space saved in ITK format. Original patient DICOM volumes are also available for download below. A key is provided that maps individual DSO objects to their corresponding DICOM Series UID, to facilitate easier data analysis.

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.

Be sure to "request dataset" with these : DICOM-Glioma-SEG, TCGA-GBM, and TCGA-LGG in your Agreement on page 1 so that we can process your request efficiently. Complete all pages.

Data Type	Download all or Query/Filter	License
Segmentations (DICOM, 4 GB)	*Download* *Search* (Download requires the NBIA Data Retriever and permission)	TCIA Restricted
DCMQI Metadata (JSON , TXT, ZIP, 3.1 MB)	*Download*	CC BY 4.0
TCGA key mapping (CSV)	*Download*	CC BY 4.0

Please contact help@cancerimagingarchive.net with any questions regarding usage.

Collections Used in this Third Party Analysis

Below is a list of the Collections used in these analyses:
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Data Type	Download all or Query/Filter	License
Corresponding Original MR Images from TCGA-LGG images 65 subjects (DICOM, MR, 17 GB)	*Download* *Search* (Download requires the NBIA Data Retriever and permission)	TCIA Restricted
Corresponding Original MR Images from TCGA-GBM images 102 subjects (DICOM, MR, 32 GB)	*Download* *Search* (Download requires the NBIA Data Retriever and permission)	TCIA Restricted

- TCGA-LGG

- TCGA-GBM

Detailed Description

Detailed Description

Collection	Radiology Imaging Statistics
Number of Studies	168*
Number of Series	1304
Number of Patients	167
Number of Images	1304
Modalities	SEG
Image Size (GB)	4

*For TCGA-GBM patient TCGA-06-0192, there were 2 studies.

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

Beers, A., Gerstner, E., Rosen, B., Clunie, D., Pieper, S., Fedorov, A., & Kalpathy-Cramer, J. (2018). **DICOM-SEG Conversions for TCGA-LGG and TCGA-GBM Segmentation Datasets** [Data set]. The Cancer Imaging Archive. https://doi.org/10.7937/TCIA.2018.ow6ce3ml

Publication Citation

Bakas, S., Akbari, H., Sotiras, A., Bilello, M., Rozycki, M., Kirby, J. S., Freymann, J. B., Farahani, K., & Davatzikos, C. (2017). **Advancing The Cancer Genome Atlas glioma MRI collections with expert segmentation labels and radiomic features.** Scientific Data, 4(1). https://doi.org/10.1038/sdata.2017.117 https://www.nature.com/articles/sdata2017117

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**. Journal of Digital Imaging, 26(6), 1045–1057. https://doi.org/10.1007/s10278-013-9622-7

In addition to the dataset citation above, please be sure to cite the following if you utilize these data in your research:

Data Citation

Bakas, S., Akbari, H., Sotiras, A., Bilello, M., Rozycki, M., Kirby, J., Freymann, J., Farahani, K., & Davatzikos, C. (2017). **Segmentation Labels for the Pre-operative Scans of the TCGA-LGG collection** [Data set]. The Cancer Imaging Archive. https://doi.org/10.7937/K9/TCIA.2017.GJQ7R0EF

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Other Publications Using This Data

TCIA maintains a list of publications that leverage TCIA data. If you have a manuscript you'd like to add please contact TCIA's Helpdesk.

Versions

Version 1 (Current): 2020/04/30

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Corresponding Original MR Images from TCGA-GBM images 102 subjects (DICOM, MR, 32 GB)	*Download* *Search* (Download requires the NBIA Data Retriever and permission)	TCIA Restricted