

AAPM RT-MAC Grand Challenge 2019 (AAPM-RT-MAC)

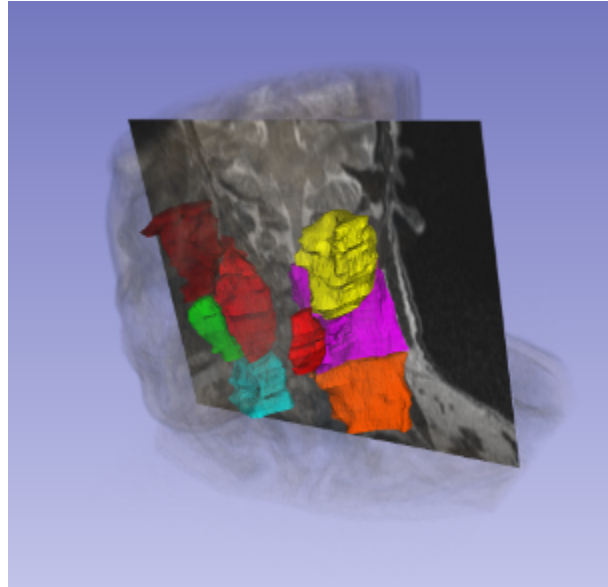
Redirection Notice

This page will redirect to <https://doi.org/10.7937/tcia.2019.bcfjqfqb> in about 15 seconds.

Summary

This data set was provided in association with a [challenge competition](#) and [related conference session](#) conducted at the [AAPM 2019 Annual Meeting](#).

MRI is popular in radiation oncology because of its excellent imaging quality of soft tissue and tumor. With the advent of MR-Linac and MR-guided radiation therapy, there is a trend toward a MR-based radiation treatment planning. Contouring is an important task in modern radiation treatment planning and frequently introduces uncertainties in radiation therapy due to observer variabilities. Auto-segmentation has been demonstrated as an effective approach to reduce this uncertainty. The overall objective of this grand challenge is to provide a platform for comparison of various auto-segmentation algorithms when they are used to delineate organs at risk (OARs) or tumors from MR images for head and neck patients for radiation treatment planning. The results will provide an indication of the performances achieved by various auto-segmentation algorithms and can be used to guide the selection of these algorithms for clinic use if desirable.



The data for this challenge contains a total of 55 MRI cases, each from a single examination from a distinct patient, with each case consisting of a T2-weighted MRI images in DICOM format. The MRI scanning protocol was designed for radiation treatment simulation. Thirty-one of these will be provided as training cases, with the parotid glands, submandibular glands, level 2 and level 3 lymph nodes contoured. The images and contours were acquired from MD Anderson Cancer Center.

More details on accessing the various challenge subsets (training, off-site test, and live test) can be found on the Detailed Description tab below.

Acknowledgements

We would like to acknowledge the individuals and institutions that have provided data for this collection:

- The University of Texas MD Anderson Cancer Center Houston, Texas, USA

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	License
Images and Radiation Therapy Structures (DICOM, 3.5 GB)	Download Search (Requires NBIA Data Retriever)	TCIA Restricted

Click the Versions tab for more info about data releases.

Detailed Description

Detailed Description

Image Statistics	Radiology Image Statistics
Modalities	MR, RTSTRUCT
Number of Participants	55
Number of Studies	55
Number of Series	110
Number of Images	6655
Images Size (GB)	3.5 GB

Supporting Documentation and Metadata

To participate in the challenge and to learn more about the subsets of training and test data used please visit <http://aapm.challenges.cloudapp.net/competitions/34>. Some information from the challenge site is included below.

Data description

T2 MR Images of 55 patients have been collected for this challenge. Data were acquired from MD Anderson Cancer Center. All images were scanned with a protocol specifically designed for head-and-neck radiation treatment simulation. Datasets were divided into three groups:

- 31 training datasets
- 12 off-site test datasets
- 12 live test datasets

Data will be provided in DICOM (both MR and RTSTRUCT), as commonly used in most commercial treatment planning systems.

Contouring Guidelines

The manual contours were drawn by a radiation oncologist at MD Anderson Cancer Center. The structures were contoured following the **DAHANCA, EORTC, GORTEC, HKNPCSG, NCIC CTG, NCRI, NRG Oncology and RROG consensus guidelines** reported in Brouwer et.al Radiotherapy and Oncol. 2015. Details of contouring guidelines can be found in "Learn the Details" on the challenge website. The following structures are included in this challenge:

- Parotid glands
- Submandibular glands
- Lymph nodes level II
- Lymph nodes level III

Training Data

Each training dataset includes a set of DICOM MR image files and one DICOM RTSTRUCT file. Each training dataset is labeled as RTMAC-TRAIN-xxx, where xxx identifies the dataset ID.

Training data are available [here](#). (Requires [NBIA Data Retriever](#).)

Off-site test data

Each off-site test dataset includes a set of DICOM MR image files and is labeled as RTMAC-TEST-xxx, where xxx identifies the dataset ID.

Off-site test data are available [here](#). (Requires [NBIA Data Retriever](#).)

RTSTRUCT data associated with Off-site test data were made available 7/20/2020.

Live test data

Each Live test dataset includes a set of DICOM MR image files and is labeled as RTMAC-LIVE-xxx, where xxx identifies the dataset ID.

Live test data are available [here](#). (Requires [NBIA Data Retriever](#).)

RTSTRUCT data associated with Live test data were made available 7/20/2020.

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

Cardenas, C., Mohamed, A., Sharp, G., Gooding, M., Veeraraghavan, H., & Yang, J. (2019). **Data from AAPM RT-MAC Grand Challenge 2019**. The Cancer Imaging Archive. <https://doi.org/10.7937/tcia.2019.bcfjqfqb>.

Publication Citation

Cardenas, C.E., Mohamed, A.S.R., Yang J., Gooding, M., Veeraraghavan, H., Kalpathy-Cramer J., Ng S.P., Ding Y., Wang J., Lai S.Y., Fuller C.D., & Sharp, G. (2020) **Head and neck cancer patient images for determining auto-segmentation accuracy in T2-weighted magnetic resonance imaging through expert manual segmentations**. Med. Phys, 47(5):2317-2322. DOI: <https://doi.org/10.1002/mp.13942>.

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. **The Cancer Imaging Archive (TCIA): Maintaining and Operating a Public Information Repository**, Journal of Digital Imaging, Volume 26, Number 6, December, 2013, pp 1045-1057. DOI: <https://doi.org/10.1007/s10278-013-9622-7>

Other Publications Using This Data

TCIA maintains [a list of publications](#) which leverage TCIA data. If you have a manuscript you'd like to add please [contact the TCIA Helpdesk](#).

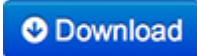
Versions

Version 3 (Current): Updated 2020/07/20

Data Type	Download all or Query/Filter
Images and Radiation Therapy Structures (DICOM, 3.5 GB)	 
	(Requires NBIA Data Retriever .)

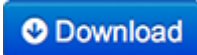
RTSTRUCTS for test and live data, previously embargoed, are now publicly visible. 12 RTSTRUCTS Test subjects, 12 RTSTRUCTS Live subjects.

Version 2: Updated 2019/07/15

Data Type	Download all or Query/Filter
Images (DICOM, 3.5 GB)	 
MR	(Requires NBIA Data Retriever .)

Release of live data for AAPM challenge.

Version 1: Updated 2019/05/23

Data Type	Download all or Query/Filter
Images (DICOM, 2.7 GB)	 
	(Requires NBIA Data Retriever .)