



# Pancreas-CT

# Summary

## Redirection Notice

This page will redirect to <https://www.cancerimagingarchive.net/collection/pancreas-ct/> in about 5 seconds.

The National Institutes of Health Clinical Center performed 82 abdominal contrast enhanced 3D CT scans (~70 seconds after intravenous contrast injection in portal-venous) from 53 male and 27 female subjects. Seventeen of the subjects are healthy kidney donors scanned prior to nephrectomy. The remaining 65 patients were selected by a radiologist from patients who neither had major abdominal pathologies nor pancreatic cancer lesions. Subjects' ages range from 18 to 76 years with a mean age of  $46.8 \pm 16.7$ . The CT scans have resolutions of 512x512 pixels with varying pixel sizes and slice thickness between 1.5 2.5 mm, acquired on Philips and Siemens MDCT scanners (120 kVp tube voltage).

A medical student manually performed slice-by-slice segmentations of the pancreas as ground-truth and these were verified/modified by an experienced radiologist.

## Data Access

### Data Access

| Data Type                        | Download all or Query/Filter  | License                   |
|----------------------------------|---|---------------------------|
| Images (DICOM, 9.3 GB)           | <a href="#">Download</a> <a href="#">Search</a><br>(Download requires <a href="#">NBIA Data Retriever</a> ) | <a href="#">CC BY 3.0</a> |
| Manual Annotations (zip, 975 kB) | <a href="#">Download</a>  | <a href="#">CC BY 3.0</a> |

Click the Versions tab for more info about data releases.

## Additional Resources for this Dataset

The NCI Cancer Research Data Commons (CRDC) provides access to additional data and a cloud-based data science infrastructure that connects data sets with analytics tools to allow users to share, integrate, analyze, and visualize cancer research data.

- [Imaging Data Commons \(IDC\)](#) (Imaging Data)

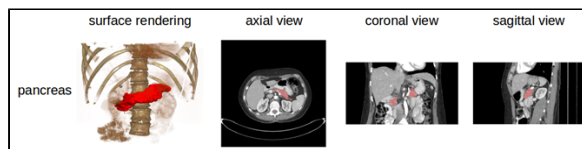
## Detailed Description

### Detailed Description

|                       |  |
|-----------------------|--|
| Collection Statistics |  |
|-----------------------|--|

|                        |        |
|------------------------|--------|
| Modalities             | CT     |
| Number of Participants | 80     |
| Number of Studies      | 80     |
| Number of Series       | 80     |
| Number of Images       | 18,942 |
| Image Size (GB)        | 9.3    |

## Data Example



## Note

The DICOM files were created from anonymized volumetric images (Analyze and NifTI) using this from ITK: [http://www.itk.org/Doxygen/html/Examples\\_2IO\\_2ImageReadDicomSeriesWrite\\_8cxx-example.html](http://www.itk.org/Doxygen/html/Examples_2IO_2ImageReadDicomSeriesWrite_8cxx-example.html).

### 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:

### **i** Data Citation

Roth, H., Farag, A., Turkbey, E. B., Lu, L., Liu, J., & Summers, R. M. (2016). Data From Pancreas-CT (Version 2) [Data set]. The Cancer Imaging Archive. <https://doi.org/10.7937/K9/TCIA.2016.tNB1kqBU>

### **i** Publication Citation

Roth HR, Lu L, Farag A, Shin H-C, Liu J, Turkbey EB, Summers RM. **DeepOrgan: Multi-level Deep Convolutional Networks for Automated Pancreas Segmentation**. N. Navab et al. (Eds.): MICCAI 2015, Part I, LNCS 9349, pp. 556–564, 2015. (arXiv link) [https://doi.org/10.1007/978-3-319-24553-9\\_68](https://doi.org/10.1007/978-3-319-24553-9_68)

### 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](#) that leverage TCIA data. If you have a manuscript you'd like to add please [contact the TCIA Helpdesk](#). Below is a list of such publications using this Collection:

- Gibson, E., Giganti, F., Hu, Y., Bonmati, E., Bandula, S., Gurusamy, K., . . . Barratt, D. C. (2017). Towards Image-Guided Pancreas and Biliary Endoscopy: Automatic Multi-organ Segmentation on Abdominal CT with Dense Dilated Networks. Paper presented at the International Conference on Medical Image Computing and Computer-Assisted Intervention.
- Greenspan, H., van Ginneken, B., & Summers, R. M. (2016). Guest Editorial Deep Learning in Medical Imaging: Overview and Future Promise of an Exciting New Technique. IEEE Transactions on Medical Imaging, 35(5), 1153-1159. doi:10.1109/TMI.2016.2553401
- Shi, H., Lu, L., Yin, M., Zhong, C., & Yang, F. (2023). Joint few-shot registration and segmentation self-training of 3D medical images. Biomedical Signal Processing and Control, 80. doi:<https://doi.org/10.1016/j.bspc.2022.104294>

### Versions

#### Version 2 (Current): Updated 2020/09/10

| Data Type              | Download all or Query/Filter  |
|------------------------|---|
| Images (DICOM, 9.3 GB) | <a href="#">Download</a> <a href="#">Search</a><br>(Download requires the <a href="#">NBIA Data Retriever</a> ) |
| Manual Annotations     | <a href="#">Download</a>  |

Note: Previously posted cases #25 and #70 were found to be from the same scan as case #2, just cropped slightly differently, and were removed from this version of the dataset.

#### Version 1 : Updated 2015/12/29

| Data Type               | Download all or Query/Filter |
|-------------------------|------------------------------|
| Images (DICOM, 10.2 GB) | not available, see version 2 |

|                    |                                 |
|--------------------|---------------------------------|
| Manual Annotations | <a href="#"><i>Download</i></a> |
|--------------------|---------------------------------|