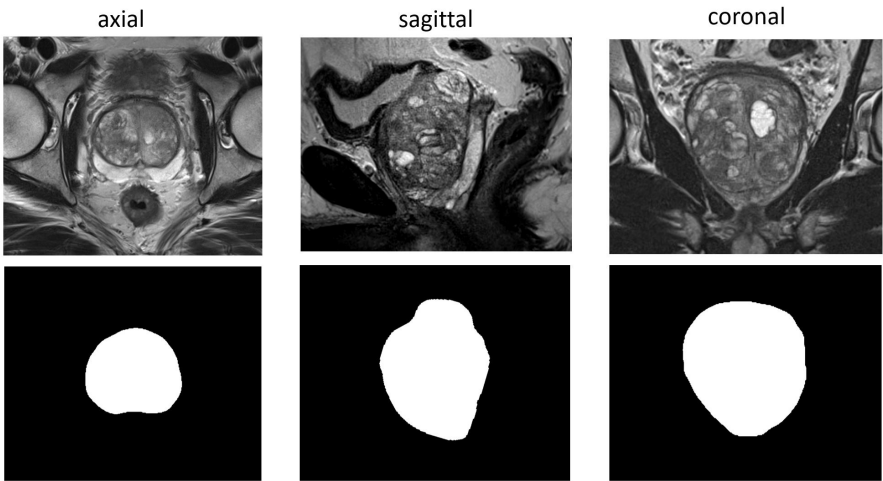


# High Resolution Prostate Segmentations for the ProstateX-Challenge (PROSTATEx-Seg-HiRes)

## Summary

We created 66 high resolution segmentations for randomly chosen T2-weighted volumes of the [SPI E-AAPM-NCI PROSTATEx Challenges \(PROSTATEx\)](#). The high resolution segmentations were obtained by considering the three scan directions: for each scan direction (axial, sagittal, coronal), the gland was manually delineated by a medical student, followed by a review and corrections of an expert urologist. The se three anisotropic segmentations were fused to one isotropic segmentation by means of shape-based interpolation in the following manner: (1) The signed distance transformation of the three segmentations is computed. (2) The anisotropic distance volumes are transformed into an isotropic high-resolution representation with linear interpolation. (3) By averaging the distances, smoothing and thresholding them at zero, we obtained the fused segmentation. The resulting segmentations were manually verified and corrected further by the expert urologist if necessary. Serving as ground truth for training CNNs, these segmentations have the potential to improve the segmentation accuracy of automated algorithms. By considering not only the axial scans but also sagittal and coronal scan directions, we aimed to have higher fidelity of the segmentations especially at the apex and base regions of the prostate.



The segmentations to standard DICOM representation were created with [dcmqi](#).

## Acknowledgements

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## Data Access

### Data Access

| Data Type                       | Download all or Query/Filter                                                                        | License   |
|---------------------------------|-----------------------------------------------------------------------------------------------------|-----------|
| Segmentations (DICOM, 0.119 GB) | <a href="#">Download</a> <a href="#">Search</a><br>(Requires <a href="#">NBIA Data Retriever</a> .) | CC BY 3.0 |

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Please contact [help@cancerimagingarchive.net](mailto: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:

| Source Data Type                                                                   | Download all or Query/Filter                                                 | License   |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----------|
| Corresponding Original MR Images from <a href="#">PROSTATEx</a> (DICOM, 371.21 MB) | <a href="#">Download</a><br>(Requires <a href="#">NBIA Data Retriever</a> .) | CC BY 3.0 |

- [PROSTATEx](#)

## Detailed Description

### Detailed Description

|                  |  |
|------------------|--|
| Image Statistics |  |
|------------------|--|

|                    |       |
|--------------------|-------|
| Modalities         | SEG   |
| Number of Patients | 66    |
| Number of Studies  | 66    |
| Number of Series   | 66    |
| Number of Images   | 66    |
| Image Size (GB)    | 0.119 |

#### 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

Schindele, D., Meyer, A., Von Reibnitz, D. F., Kiesswetter, V., Schostak, M., Rak, M., & Hansen, C. (2020). **High Resolution Prostate Segmentations for the ProstateX-Challenge [Data set]**. The Cancer Imaging Archive. <https://doi.org/10.7937/TCIA.2019.DEG7ZG1U>



#### 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. **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: [10.1007/s10278-013-9622-7](https://doi.org/10.1007/s10278-013-9622-7)

### Other Publications Using This Data

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#### Versions

### Version 1 (Current): 2020/09/18

| Data Type                                                          | Download all or Query/Filter                                                                                                                                               |
|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Segmentations (DICOM, 0.119 GB)                                    |   |
| Corresponding Original MR Images from PROSTATEx (DICOM, 371.21 MB) |                                                                                        |