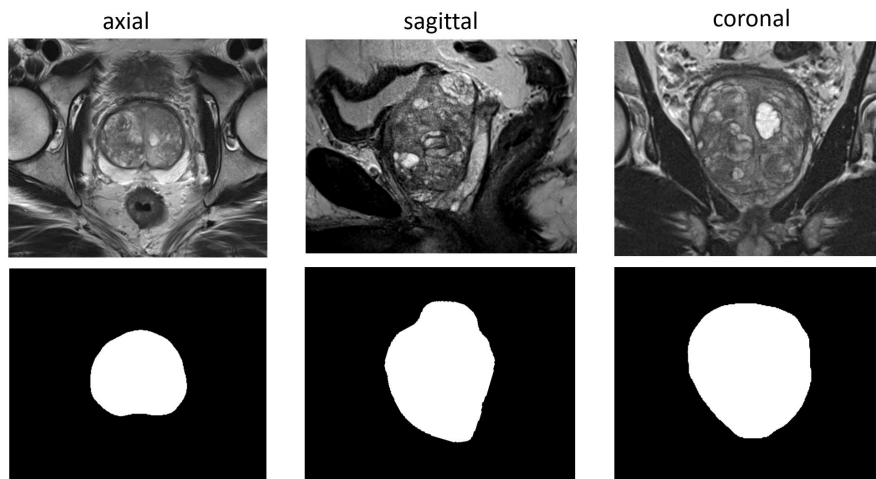


# High Resolution Prostate Segmentations for the ProstateX-Challenge (PROSTATEx-Seg-HiRes)

## Summary

We created 66 high resolution segmentations for randomly chosen T2-weighted volumes of the [SPIE-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. These 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

- This work has been funded by the EU and the federal state of Saxony-Anhalt, Germany under grant number ZS/2016/08/80388.

## Data Access

### Data Access

Click the **Download** button to save a ".tcia" manifest file to your computer, which you must open with the [NBIA Data Retriever](#).

Data Type	Download all or Query/Filter
Segmentations (DICOM, 0.119 GB)	<a href="#">Download</a> <a href="#">Search</a>
Corresponding Original MR Images from <a href="#">PROSTATEx</a> (DICOM, 371.21 MB)	<a href="#">Download</a>

## Collections Used in this Third Party Analysis

Below is a list of the Collections used in these analyses:

- [SPIE-AAPM-NCI PROSTATEx Challenges \(Prostate-X-Challenge\)](#)

## 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
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**Note:** Please contact [help@cancerimagingarchive.net](mailto:help@cancerimagingarchive.net) with any questions regarding usage.

**Citations & Data Usage Policy**

**Citations & Data Usage Policy**

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- i Dataset 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>
- i Publication Citation**

Meyer, A., Chlebus, G., Rak, M., Schindele, D., Schostak, M., van Ginneken, B., Schenk, A., Meine, H., Hahn, H. K., Schreiber, A., & Hansen, C. (2020). Anisotropic 3D Multi-Stream CNN for Accurate Prostate Segmentation from Multi-Planar MRI. Computer Methods and Programs in Biomedicine, 105821. <https://doi.org/10.1016/j.cmpb.2020.105821>
- i 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)

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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](#).

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

Data Type	Download all or Query/Filter
Segmentations (DICOM, 0.119 GB)	<div style="display: flex; gap: 10px;"> <div style="background-color: #007bff; color: white; padding: 5px 10px; border-radius: 4px; display: flex; align-items: center; justify-content: center;"> <span style="font-size: 1em;">↓</span> Download         </div> <div style="background-color: #ffc107; color: white; padding: 5px 10px; border-radius: 4px; display: flex; align-items: center; justify-content: center;"> <span style="font-size: 1em;">🔍</span> Search         </div> </div>
Corresponding Original MR Images from PROSTATEx (DICOM, 371.21 MB)	<div style="background-color: #007bff; color: white; padding: 5px 10px; border-radius: 4px; display: flex; align-items: center; justify-content: center;"> <span style="font-size: 1em;">↓</span> Download         </div>