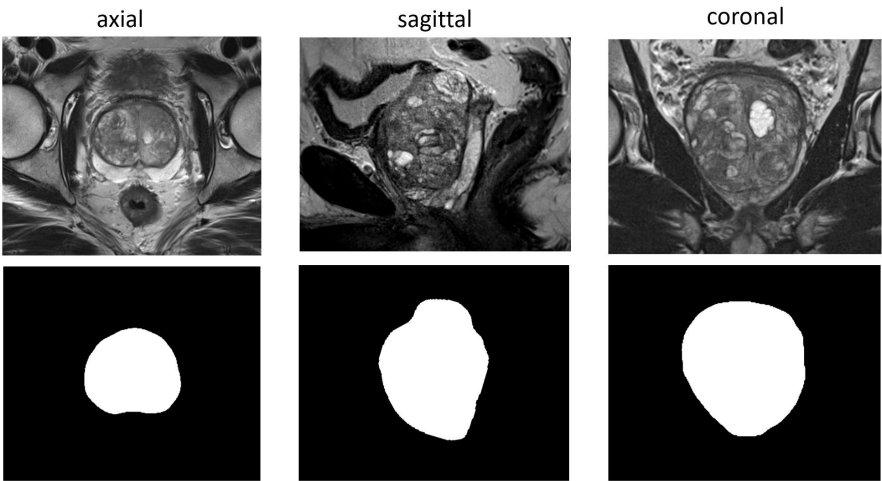


High Resolution Prostate Segmentations for the ProstateX-Challenge (PROSTATEx-Seg-HiRes)

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 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)	Download Search (Requires NBIA Data Retriever .)	CC BY 3.0

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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 PROSTATEx (DICOM, 371.21 MB)	Download (Requires NBIA Data Retriever .)	CC BY 3.0

- [PROSTATEx](#)

Detailed Description

Detailed Description

Image Statistics	
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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

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>



TCIA Citation

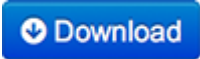
Clark K, Vendt B, Smith K, Freymann J, Kirby J, Koppel P, Moore S, Phillips S, Maffitt D, Pringle M, Tarbox L, Prior F. **The Cancer Imaging Archive (TCIA): Maintaining and Operating a Public Information Repository**, Journal of Digital Imaging, Volume 26, Number 6, December, 2013, pp 1045-1057. DOI: [10.1007/s10278-013-9622-7](https://doi.org/10.1007/s10278-013-9622-7)

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Corresponding Original MR Images from PROSTATEx (DICOM, 371.21 MB)	