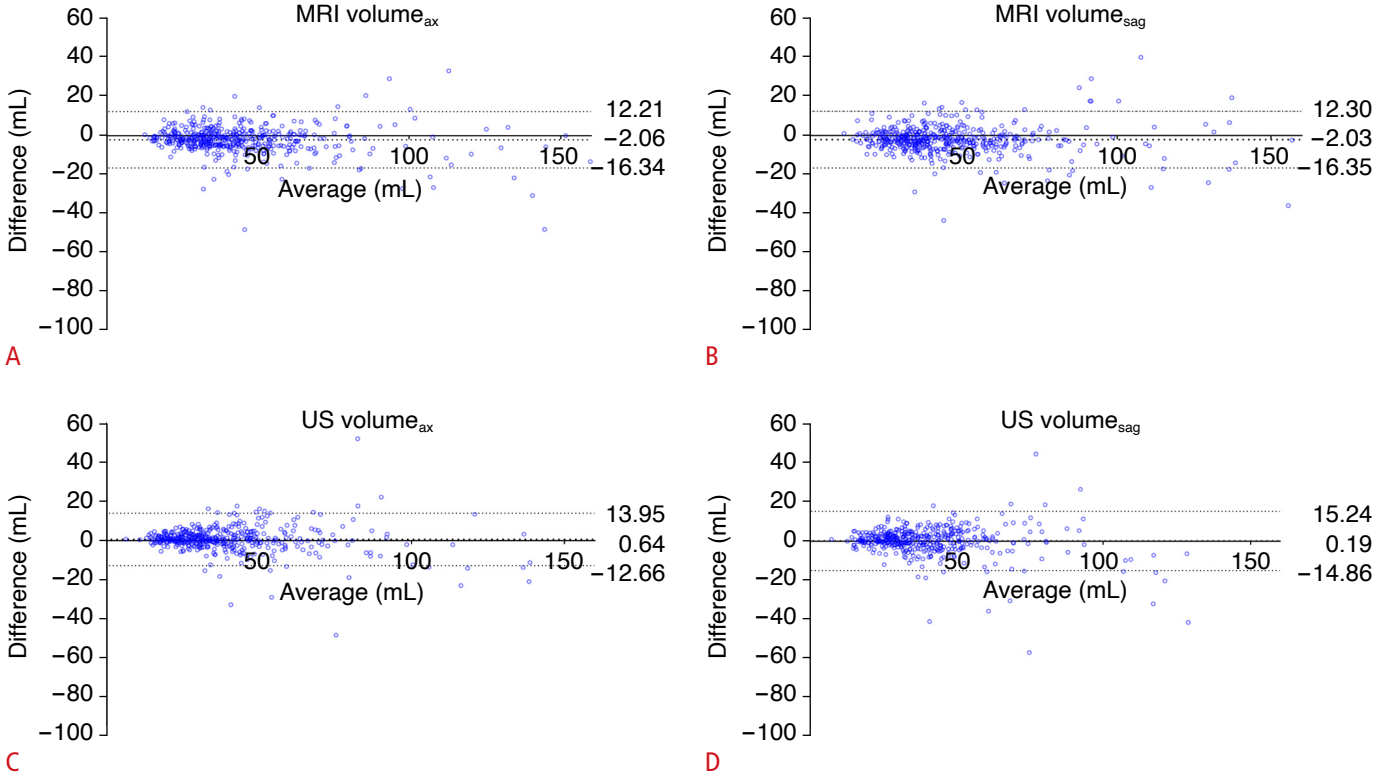
Supplementary Material. Details of artificial intelligence algorithm to segment prostate gland on magnetic resonance imaging.

The segmentation model takes the entire 3D radiological volume as input, and outputs the probability maps that indicate how likely voxels belongs to the target region or interest. A deep dense fully convolutional encoder-decoder neural network was adopted. It has an overall v-net architecture with dense blocks. Each dense block has a batchnorm, convolution/deconvolution, leaky ReLU repeated with dense connections. The v-net part allows for higher resolution by concatenating features from the downsampling part to the upsampling part of the network (skip connections). Training was done using AdaBound optimizer with constant learning rate of 0.001 and Jaccard Index as the loss function.



Supplementary Fig. 1. Interreader agreement in prostate gland volume estimates measured by two radiologists.

Bland-Altman plots show the differences in the prostate gland volume calculated using anteroposterior (AP) diameter on axial magnetic resonance imaging (MRI) (A), sagittal MRI (B), axial ultrasonography (US) (C) and sagittal US (D) images. The thick dot lines indicate mean differences and thin dot line indicate 95% limits of agreement. Average, the average of the two measurements; difference, volume measured by reviewer 1−that by reviewer 2; volume$_{ax}$=AP diameter on axial image×transverse diameter×longitudinal diameter×0.52; volume$_{sag}$=AP diameter on sagittal image×transverse diameter×longitudinal diameter×0.52.