Model Based Segmentation

PHILIPS

Imalytics Research Workstation
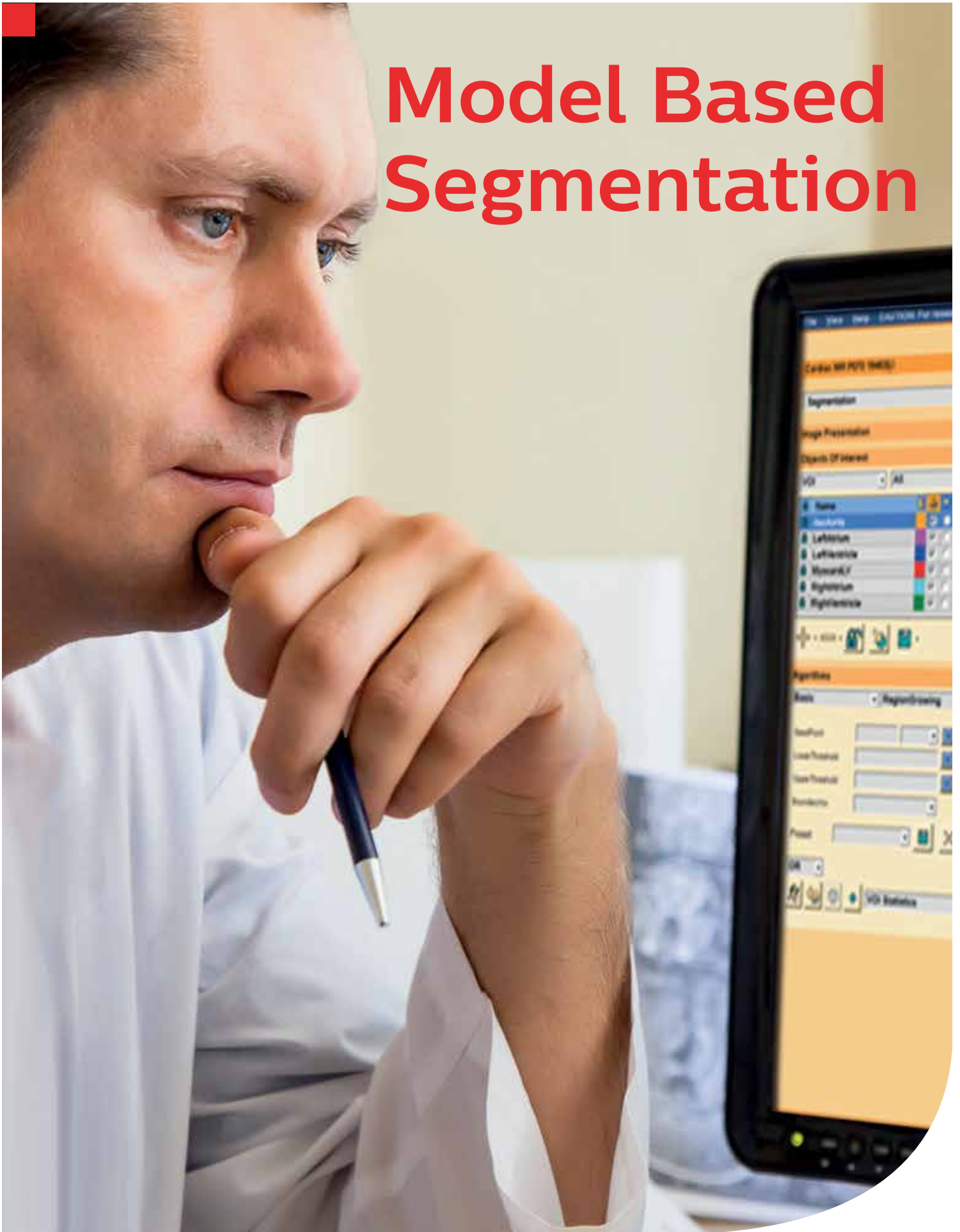
Model based segmentation

The Model Based Segmentation Framework provides you with the infrastructure for fully automatic segmentation of organs and their substructures in multi-modal images for research purpose. This is achieved by applying a generic organ model to the images of a specific case.

The segmentation is performed very efficiently, delivering quantitative and reproducible results.

Currently available organ models:

- heart model for MRI
- heart model for CTA
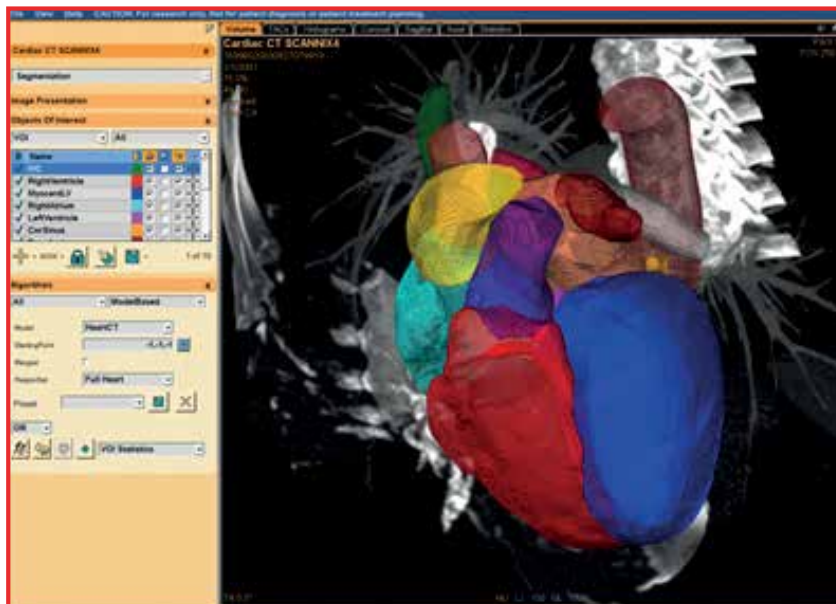- prostate model for MRI

Other specific models can be developed upon customer request.
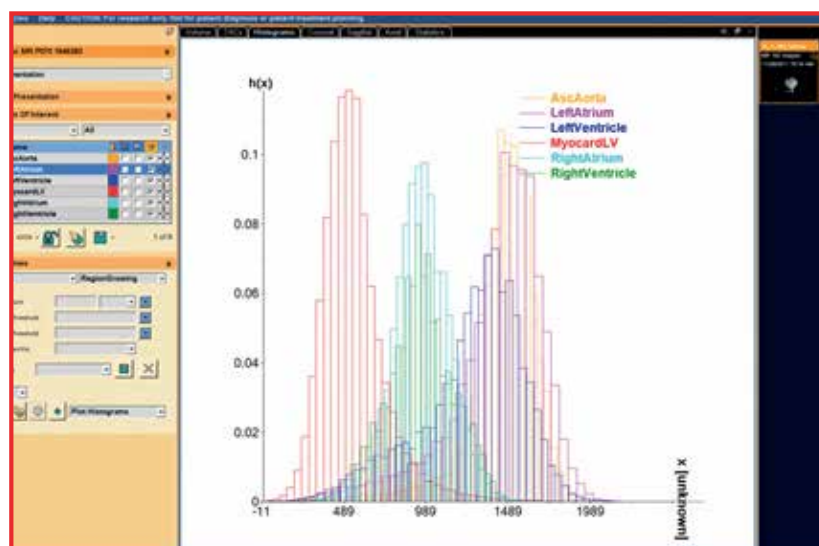
Histogram of the MRI signal distribution for the segmented anatomical substructures

Segmentation of the heart using the cardiac model for CTA

3D mesh representation of the heart segmentation on CTA data

Segmentation of the heart using the cardiac model for MRI

Publications

Automatic whole heart segmentation in static magnetic resonance image volumes.
Peters J, Ecabert O, Meyer C, Schramm H, Kneser R, Groth A, Weese J.
Med Image Comput, Volume 10, 2007

Automatic model-based segmentation of the heart in CT images.
Ecabert O, Peters J, Schramm H, Lorenz C, von Berg J, Walker MJ, Vembar M, Olszewski ME, Subramanyan K, Lavi G, Weese J.
Medical Imaging, Volume 27, Issue 9, September 2008, Pages 1189-1201

Optimizing boundary detection via Simulated Search with applications to multi-modal heart segmentation.
Peters J, Ecabert O, Meyer C, Kneser R, Weese J.
Medical Image Analysis, Volume 14, Issue 1, February 2010, Pages 70-84

Segmentation of the heart and great vessels in CT images using a model-based adaptation framework.
Ecabert O, Peters J, Walker MJ, Ivanc T, Lorenz C, von Berg J, Lessick J, Vembar M, Weese J.
Medical Image Analysis, Volume 15, Issue 6, December 2011, Pages 863-876

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