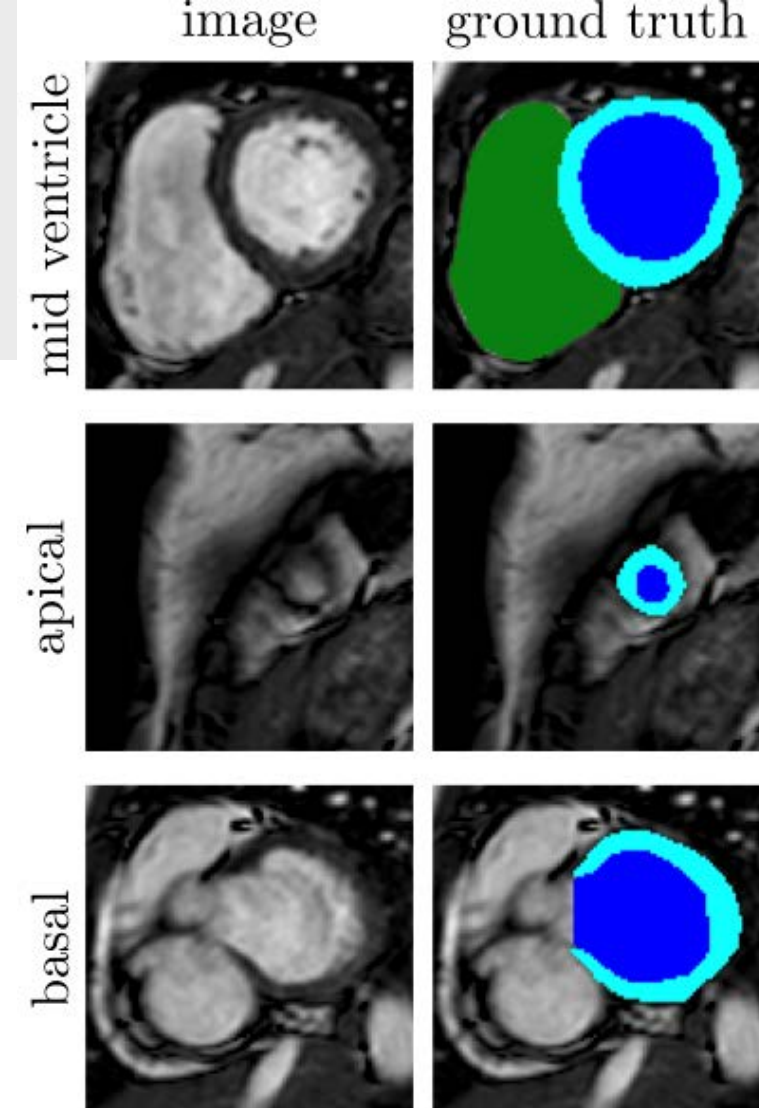
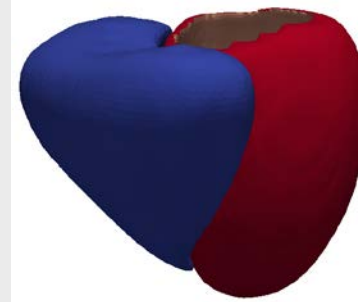


Segmentation of the Heart on 3D MR Images



Goal: Use shape priors to improve state-of-the-art cardiac segmentation on 3D MR images

Description:

Automated segmentation of cardiac structures in volumetric MR images can be challenging due to poor image contrast. Current approaches [1] may fail to reconstruct anatomically correct shapes. The goal of this project is to incorporate shape priors into the problem formulation, which have been successfully applied to 3D reconstruction of street scenes [2], heads [3], and other objects.

[1] Koch et al. "Multi-atlas segmentation using partially annotated data: Methods and annotation strategies." arXiv preprint arXiv:1605.00029 (2016)

[2] Häne et al. "Joint 3D Scene Reconstruction and Class Segmentation" CVPR 2013

[3] Maninchedda et al. "Semantic 3D Reconstruction of Heads" ECCV 2016

2D cross-section at different locations: MRI (left), labels (right)

Requirements / Tools:

Required: C++, some experience with image processing
Recommended: Experience with medical images

Supervisor:

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