Image Processing

3D DENSE phase data → Phase Unwrapping, displacement field calculation → User defined guide points at $t_n$ → Fit 3D model for frame $t_n$ → Extract 2D epicardial and endocardial contours for all partitions at $t_n$ → Estimate myocardial volume at $t_1$ → 3D Tissue tracking

Model Propagation

Guide point propagation $t_x = t_{n-1}, t_{n-2}, ..., t_1$ → Refine guide point position using Gaussian volume estimate → Fit 3D model → Extract 2D epicardial and endocardial contours for all partitions at $t_x$ → Reached first frame $t_1$?

Guide point propagation $t_x = t_{n+1}, t_{n+2}, ..., t_N$ → Refine guide point position using Gaussian volume estimate → Fit 3D model → Extract 2D epicardial and endocardial contours for all partitions at $t_x$ → Reached final frame $t_N$?

Noise removal methods

Segmentation complete