

Predicting real time 3D Deformation Field Maps (DFM) based on Volumetric Cine MRI (VC-MRI) and Artificial Neural Networks for On-board 4D Target Tracking/Gating

Jonathan Pham (Session: Tracking and Motion Management 08/01/2018 | 1:45PM — 3:45PM)

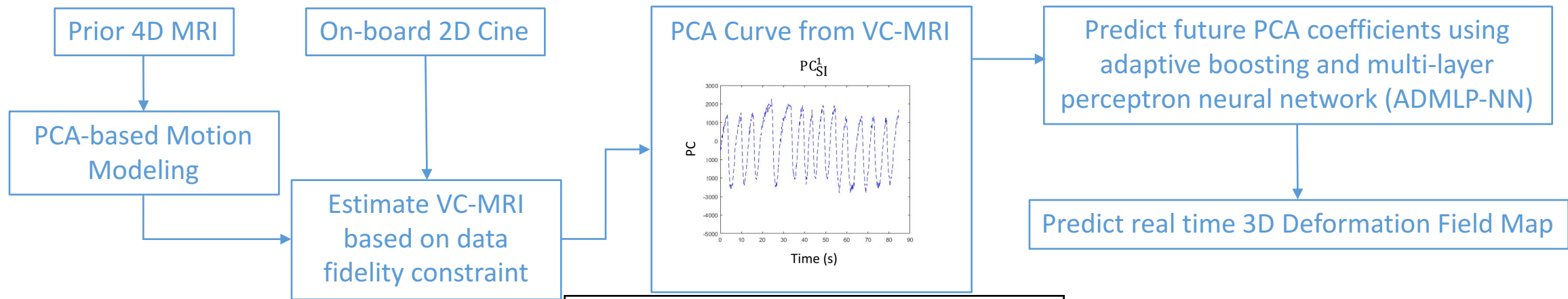


Figure 1: Flow chart for predicting real time 3D Deformation Field Maps

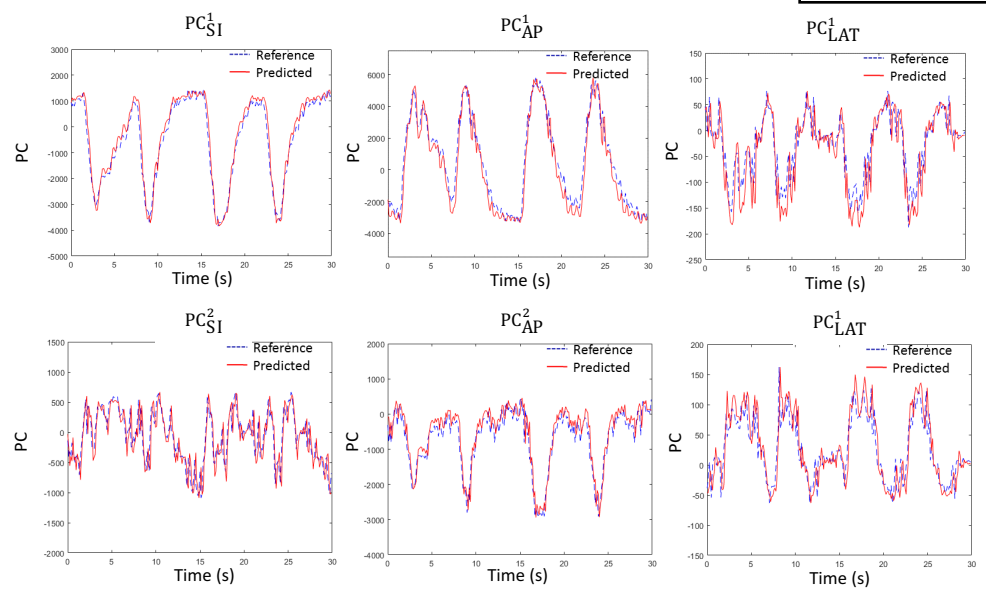


Figure 2: The top row shows the first principal components in the SI, AP and lateral directions. The bottom row shows the corresponding second principal components. The blue dashed line corresponds to the reference curve generated from estimated VC-MRI, and the red line corresponds to the predicted curves.

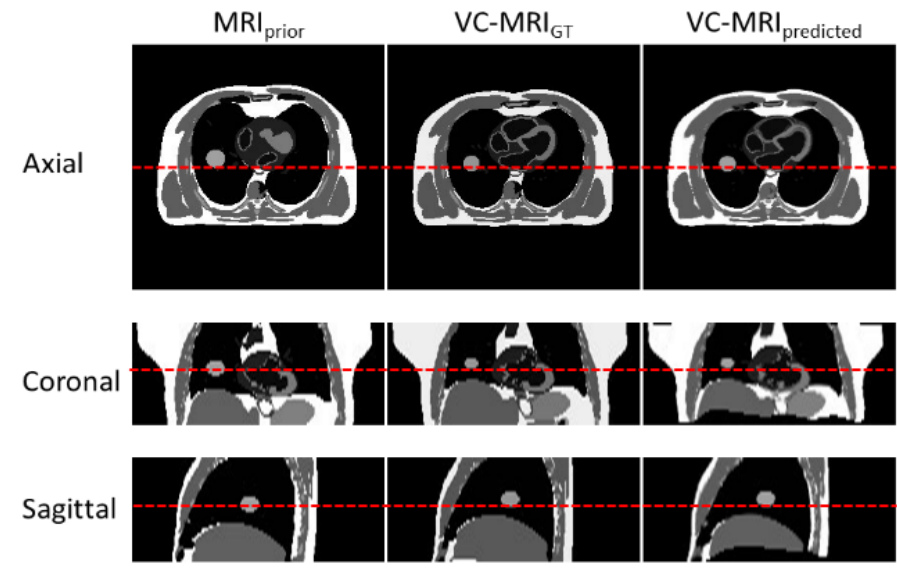


Figure 3: EOE phase of prior 4D MRI (MRI_{prior}), ground-truth VC-MRI ($VC-MRI_{GT}$) at an EOI timestep, and predicted VC-MRI ($VC-MRI_{predicted}$) at the EOI timestep. The predicted VC-MRI was generated by deforming MRI_{prior} based on the principal component curves predicted with the ADMLP-NN method.