

عنوان مقاله:

Pseudo-increasing Frame Rates of Carotid Artery B-mode Images using Manifold Learning

محل انتشار:

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خلاصه مقاله:

Tracking the rapid motions and vibrations of the carotid artery wall is an important issue in the noninvasive carotid ultrasonography. In order to capture the fast moving structures and vibrations, high frame rate B-mode sequences, without decreasing lateral resolution, are needed. In the present paper, manifold learning is used to find the relation between the frames during a cardiac cycle as well as multiple cardiac cycles. Locally linear embeddings method represents the nonlinear embedded information in the sequential B-mode images in a two dimensional manifold and each image is shown by a point on reconstructed manifold. The relationship between images in the new domain is obtained based on the periodicity of the cardiac cycle. Knowing the phase of the cardiac cycle for every frame helps the automatic detection of end-diastole and end-systole frames of carotid B-mode images which is helpful for noninvasive elastography and carotid wall studies. The results show that our proposed method is capable of increasing frame rate effectively

کلمات کلیدی:

carotid B-mode images , frame rate , manifold learning , locally linear embeddings algorithm

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