

## Gaussian Mixture Model Based Identification of Arterial Wall Movement for Computation of Distension Waveform

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**Abstract :** This work proposes a novel Gaussian Mixture Model (GMM) based approach for accurate tracking of the arterial wall and subsequent computation of the distension waveform using Radio Frequency (RF) ultrasound signal. The approach was evaluated on ultrasound RF data acquired using a prototype ultrasound system from an artery mimicking flow phantom. The effectiveness of the proposed algorithm is demonstrated by comparing with existing wall tracking algorithms. The experimental results show that the proposed method provides 20% reduction in the error margin compared to the existing approaches in tracking the arterial wall movement. This approach coupled with ultrasound system can be used to estimate the arterial compliance parameters required for screening of cardiovascular related disorders.

**Keywords :** distension waveform, Gaussian Mixture Model, RF ultrasound, arterial wall movement

**Conference Title :** ICBI 2015 : International Conference on Biosignals and Imaging

**Conference Location :** Prague, Czechia

**Conference Dates :** March 23-24, 2015