New literature for real-time AI-empowered echocardiography

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Contents

1 Introduction

In the last decades the use of echocardiography is crucial in Intensive Care Units (ICU) advances of smaller US clinical devices, US image quality and functions and its real-time capabilities to access cardiac anatomy and functions [3, 9, 8, 1]. However, despite the previous advances there is still challenges on finding standard views from experienced sonograpehrs that sometimes such quantifcations are qualitative and subjective [3].

Assessing left ventricular ejection fraction (LVEF) is done at the point of care by clinicians with different expertise which is impacted on the rhythm and structural varations [7]. However, automatic quantification of LVEF is still challenging at the point of care due to variation of protocols, skills levels [4] and the nature of proving feedback on real-time [7].

2 Methods and materials

Rank-2 non-negative matrix factorization [10] and recently Robust Non-negative Matrix Factorization [2] are low-computation cost algorithms to automatic segment mitral valve. Clustering techniques [11] [5]. Laumer et al. proposed a novel autoencoder-based framework to learn human interpretable representation of cardiac cycles from cardiac ultrasound data [6],

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