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MYOCARDIAL INFARCTION DETECTION BASED CONVOLUTIONAL NEURAL NETWORK-ENHANCED GRAPH NEURAL NETWORK ALGORITHM

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&
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Abstract
A vital piece of medical technology that aids in the diagnosis of a number of heart-related disorders in patients is an electrocardiogram (ECG). To find significant episodes in long-term ECG data, an automated diagnostic method is needed. Cardiologists face a very difficult problem when trying to quickly examine long-term ECG records. To pinpoint critical occurrences, a computer-based diagnosing tool is necessary. Heart attacks, sometimes referred to as myocardial infarctions (MI), are medical conditions that happen when the blood flow in the coronary arteries suddenly stops or completely narrows, though lots of researches have been carried out with impressive performance record for detection of MI. However, existing approaches for MI detection can be improved upon for better results. In our paper we enhanced Convolutional Neural Network (CNN) algorithm with Graph Neural Network (GNN) to better select features which gave us an f1 score of 99.58%, precision of 99.5% and an accuracy of 99.72%.

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Key words: CNN, Deep learning, Feature selection, GNN, Machine learning, Myocardial infarction.

1.0 Introduction
A heart attack, also known as Myocardial Infarction (MI), is a disorder in which one or more of the coronary arteries that supply the heart muscle are blocked or narrowed. Atherosclerosis is the primary cause of this illness (Pustjens *et al.*, 2020).

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