

Title: Exploring the Relationship between Cardiac Disease and Patterns of 12-Lead Ecg Through Neural Network: A Comprehensive Review

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Abstract: Heart disease is a significant public health concern, affecting a large number of people worldwide daily. With a shortage of qualified cardiologists, particularly in low-income countries, the diagnosis and management of heart disease can be challenging. The electrocardiogram (ECG) is the primary diagnostic tool for heart disease, but interpreting ECG reports requires the expertise of a qualified cardiologist, making it time-consuming and costly. To address this issue, automated ECG signal interpretation is necessary. Hence, this article has made an encyclopedic review of the existing literature. The article includes a demonstration of frequently utilized data sets and tools and techniques for this domain. Therefore, a framework is proposed based on the observation of existing works. The proposed framework aims to improve the analysis of ECG reports for both cardiologists and non-experts. Our framework considers the 12-lead ECG, the different types of leads, wave patterns, and their relationship with heart disease. The objective is to produce reliable and accurate results while reducing analysis time. The proposed framework is inherent to improve the diagnosis and management of heart disease by enabling a wider range of healthcare providers and individuals to interpret ECG reports. This could lead to earlier detection and treatment of heart disease, which could improve outcomes and save lives.

Keywords: Heart disease, ECG signals, Deep Learning, Heart Disease diagnosis

DOI: <http://dx.doi.org/10.2139/ssrn.4464737>

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4464737