OPEN ACCESS Freely available online

Journal of Medical Diagnostic Methods

ISSN: 2168-9784

Opinion Article

Brief Note on Role Artificial Intelligence in ECG Diagnosis

Asra Hameed *

Department of Diagnostic, Osaka University, New York, USA

DESCRIPTION

The Electrocardiogram (ECG) is a common clinical technique used by both cardiologists and non-cardiologists for decades. The Electrocardiogram (ECG) is a low-cost, quick, and easy diagnostic that is available even in the most resource-limited environments. The test not only gives insight into the physiological and anatomical state of the heart, but it can also provide crucial diagnostic information for systemic disorders (such as electrolyte derangements and drug toxic effects). Although ECG recording collection is well standardized and reproducible, human interpretation of the ECG differs substantially depending on experience and competence.

For numerous years, computer-generated interpretations have been employed in this context. These interpretations, however, are dependent on established rules and human pattern or feature recognition algorithms, which may not always capture the complexities and subtleties of an ECG. However, deep-learning Convolutional Neural Networks (CNNs), which had previously been utilised mostly in computer vision, image processing, and voice recognition, have recently been modified to analyse the normal 12-lead ECG. This progress has resulted in completely automated AI models that imitate human-like ECG interpretation, perhaps with higher diagnostic fidelity and workflow efficiency than previous rule-based computer interpretations. The ECG is, in fact, an excellent substrate for deep-learning AI applications. The ECG is readily available and produces repeatable raw data in digital format that is simple to preserve and transmit.

In addition to fully automated ECG interpretation, rigorous research programmes using large databanks of ECG and clinical datasets, combined with powerful computational capabilities, have demonstrated the utility of the AI-enhanced ECG as a tool for detecting ECG signatures and patterns that are unrecognisable to the human eye. These patterns can indicate cardiac disease, such as Left Ventricular (LV) systolic dysfunction, silent Atrial Fibrillation (AF), and Hypertrophic Cardiomyopathy (HCM), but they can also reflect systemic physiology, such as a person's age, gender, or serum potassium levels.

A single 12-lead ECG, among other possible clinical uses, might allow for the quick phenotyping of an individual's cardiovascular health and aid to direct focused diagnostic tests in an efficient and possibly cost-effective way. The requirement for the data quality control, external validity, data security, and the evidence of improved patient outcomes with the installation of AI-enabled technologies, such as the AI-ECG, are all challenges with AI applications and also clinical capabilities, research prospects, limitations, and danger of applying AI to the ECG for the diagnosis and treatment of cardiovascular illness. The several problems that have been encountered in the development, validation, and use of the AI–ECG in medicine are being focused.

Deep-learning AI's actual potential when applied to the ubiquitous 12-lead ECG is beginning to be appreciated. The AI-efficacy ECG's is being proved not just as a tool for thorough human-like interpretation of the ECG, but also as a potent tool for phenotyping cardiac health and illness that may be used at the point of care. The AI-ECG implementation is still in its early stages, but a constantly expanding clinical inquiry agenda will decide the additional value of these AI tools, their appropriate deployment in the clinical arena, and its varied and so yet mainly unexpected repercussions. The AI-ECG, like any medical technology, must be vetted, validated, and confirmed, and doctors must be appropriately taught to utilise it, but when integrated into medical practise, the AI-ECG has the potential to change clinical treatment.

Correspondence to: Asra Hameed, Department of Diagnostic, Osaka University, New York, USA, E-mail: asra117@yahoo.com

Received: 04-Mar-2022, Manuscript No. JMDM-22-17087; **Editor assigned:** 07- Mar-2022, PreQC No. JMDM-22-17087 (PQ); **Reviewed:** 21-Mar-2022, QC No. JMDM-22-17087; **Revised:** 28-Mar-2022, Manuscript No. JMDM-22-17087; **Published:** 12-April -2022, DOI: 10.35248/2168-9784.22.S 1:003.

Citation: Hameed A (2022) Brief Note on Role Artificial Intelligence in ECG Diagnosis. J Med Diagn Meth.S1: 003