AI Device Can Identify Cardiovascular Ailments Sooner; Lead To Early Treatment [Details]

A new artificial intelligence (AI) tool developed by scientists might speed up the identification of cardiovascular problems.

By **Rumaisa Khusru**
June 8, 2021 21:06 IST

Several big websites were hit by a massive outage

A group of researchers from Nanyang Technological University, Singapore (NTU Singapore), Ngee Ann Polytechnic, Singapore (NP), and the National Heart Centre Singapore (NHCS) have developed a technology that might help doctors diagnose cardiovascular illnesses faster. Their device, which is powered by artificial intelligence (AI), uses electrocardiograms (ECGs) to identify coronary artery disease, myocardial infarction, and congestive heart failure with an accuracy of more than 98.5 percent.

The scientists think that their innovation could support the detection of cardiovascular problems in clinical settings, specifically as physicians carry out early ECGs, ultimately leading to speedier courses of therapy.

The diagnostic tool was created by the researchers using an AI machine learning technique called Gabor-Convolutional Neural Network (Gabor-CNN), which mirrors the structure and function of the human brain, allowing computers to learn from prior experiences in the same way that humans do. They trained their program to recognize patterns in patients' ECGs using the algorithm by entering examples of ECG signals that suggest cardiovascular illnesses.
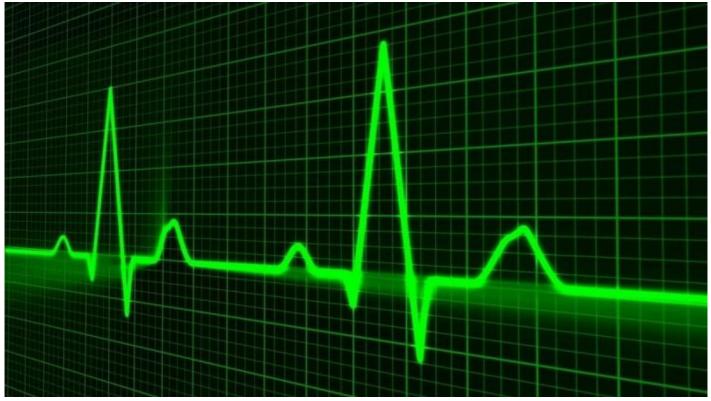
"Our study on a preliminary small group of subjects has demonstrated promising results in terms of the accuracy of using routine ECGs to classify some common cardiovascular conditions. Although confirming the specific disease still requires additional testing, our diagnostic tool will allow physicians to triage patients more efficiently and to streamline the number and type of downstream confirmatory tests," says Clinical Associate Professor Tan Ru San, Senior Consultant at the Department of Cardiology, NHCS, who co-authored the study.

Artificial intelligence to aid in the detection of heart disease

PIXABAY

To put their diagnosis technique to the test, the researchers collected ECG data from both healthy people and patients with common [cardiovascular](#) illnesses. The technology was used to analyze ECG data from 92 healthy people, seven patients with coronary artery disease, 148 patients with myocardial infarction, and 15 patients with congestive heart failure in a pilot trial.

PIXABAY

"Our AI-enhanced tool could automatically identify ECG signals associated with healthy people and patients with different cardiovascular diseases with an accuracy of more than 98.5%. Heart disease is a leading cause of death worldwide and affects not only the heart but other major parts of the body. Early detection prevents complications such as heart failure, stroke, kidney disease and artery disease." Professor Tan Ru San said.

The researchers will collaborate with local hospitals to undertake more trials to confirm the clinical application of their novel diagnostic AI tool on a wider patient database. They expect that it will be used to supplement current diagnostic tools for cardiovascular disorders, such as magnetic resonance imaging (MRI) and coronary angiography.