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Health



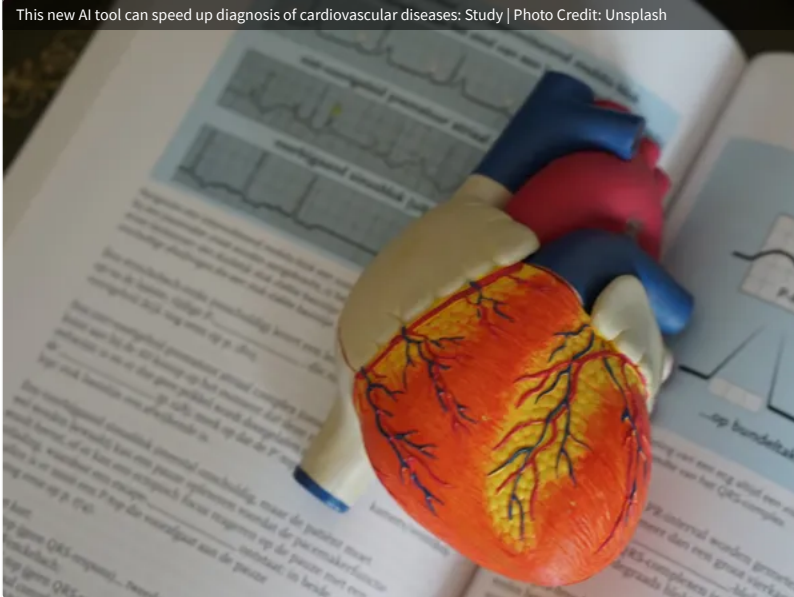
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Researchers came up with artificial intelligence (AI) tool that can facilitate faster diagnosis of cardiovascular diseases.

This new AI tool can speed up diagnosis of cardiovascular diseases: Study | Photo Credit: Unsplash



KEY HIGHLIGHTS

- Diagnosis is the first step towards the treatment of any disease
- Delay in diagnosis of certain diseases may often lead to fatal consequences
- Artificial Intelligence holds immense potential for the health sector that can be tapped and used

Technology is evolving and is proving to be beneficial for humans with each advancement. Recently, an artificial intelligence (AI) tool that can facilitate faster diagnosis of cardiovascular diseases has been developed by a team of researchers from Nanyang Technological University, Singapore (NTU Singapore), Ngee Ann Polytechnic, Singapore (NP), and the National Heart Centre Singapore (NHCS). Treatment processes of cardiovascular diseases will be more effective if commenced and carried out in time. This invention may contribute greatly to support, diagnose, and treat cardiovascular diseases. The [study](#) was published in the journal *Computers in Biology and Medicine* called *"Automated detection of coronary artery disease, myocardial infarction and congestive heart failure using GaborCNN model with ECG signals"*.

AI and cardiovascular disease diagnosis

The tools make use of electrocardiograms (ECGs) for the diagnosis of diagnosing coronary artery disease, myocardial infarction and congestive heart failure. The AI machine learning algorithm used was Gabor-Convolutional Neural Network (Gabor-CNN). ECG signals from 92 healthy individuals, 9 coronary artery disease patients, 148 myocardial infarction patients, and 18 congestive heart failure patients were analyzed.

Dr U Rajendra Acharya, Senior Faculty Member from Ngee Ann Polytechnic's School of Engineering said: "Our AI diagnostic tool, which was developed using a small public database, can detect coronary artery disease, myocardial infarction and congestive heart failure using ECG signals accurately. It has the potential to aid clinicians in the screening of cardiovascular diseases quickly, speed up the delivery of treatment and reduce costs for patients."

Clinical Associate Professor Tan Ru San, a Senior Consultant at the Department of Cardiology, NHCS, who co-authored the study, said in a news release, "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."

"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 per cent. Heart disease is a leading cause of death worldwide

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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.", he added.

The team hopes to utilize this newly-discovered method with preexisting diagnosing techniques. However, validation for clinical use requires further trials.

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