DNN-Assisted Sensor for ECG Monitoring

Tech ID: 32494 / UC Case 2020-310-0

BRIEF DESCRIPTION

Inventors at UCI have developed a method of monitoring ECG signals from wearable devices while using artificial intelligence to only select the signals that are relevant to disease for further evaluation.

SUGGESTED USES

·Analyzing ECG signals

FEATURES/BENEFITS

·Uses artificial intelligence to analyze ECG signals and preselect the signals that are abnormal.

·Preselection of abnormal signals occurs at the level of the ECG sensor freeing up processing power of the wearable device.

TECHNOLOGY DESCRIPTION

Most wearable devices contain powerful heart rate sensors, continuously monitoring a patient's heart rate.Unfortunately, this continuous monitoring can take up a large portion of processing power for a wearable device and produces a file that is extremely large. One way to reduce the file size is by compression. But, the compression of data can degrade the overall signal quality and interpretation of results.

Tapping into artificial intelligence, the researchers at UCI have developed a deep neural network (DNN) which allows the user to analyze the ECG signal at the sensor and preselect parts of the signal that are abnormal. This produces a file that is significantly smaller for physicians to analyze and frees up the processing power of the wearable device.

STATE OF DEVELOPMENT

Prototype in development. They are currently working to deploy this technology on real world applications such as smart wristbands or an ECG monitor to determine if they can detect an abnormality.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	12,347,557	07/01/2025	2020-310

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OTHER INFORMATION

CATEGORIZED AS

» **Medical**
  » Disease: Cardiovascular and Circulatory System
  » Screening
» **Sensors & Instrumentation**
  » Medical

RELATED CASES

2020-310-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- HDRL: Homogeneous Dual-Rail Logic For DPA Attack Resistive Secure Circuit Design

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