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DATA INTEGRITY AND SECURITY IN CARDIOVASCULAR HEALTHCARE SYSTEM

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Abstract : The electrocardiogram (ECG) is an important part of the routine medical examination to evaluate for heart arrhythmias. In this process, we present a deep learning-based convolutional neural network framework, previously learned from general information and transferred to automatic ECG rhythm, by classifying patient ECGs according to cardiac conditions. The main purpose of this method is to use a simple, powerful and easy-to-use deep learning technique to classify the two different disease types selected. The results show that cascading deep learning with neural backpropagation networks can be very productive.

INTRODUCTION

Signal Processing Signal processing is a field of systems engineering, electronics engineering and applications, and mathematics that deals with the study or analysis of analog and digital signals that represent time-varying or spatially varying physical quantities. Signs of interest can include text such as audio, electronic signals, pictures and biometrics such as electrocardiograms, control signals, communication networks and others. 1.2 Types of operation and application Signal processing purposes can be divided into the following categories. • Signal acquisition and reconstruction, which includes measuring, storing the physical signal, and possibly later reconstructing or approximating the original signal. For digital systems this often includes sampling and quantization. • Improvements such as noise reduction, image enhancement and noise reduction. • Including signal compression (Position encoding), audio compression, image compression and video compression. • Feature extraction such as image recognition and speech recognition. 1.3 Seismic signal processing In communication systems, signal processing can take place in OSI layer 1, in the seven-layer OSI model at the physical layer (modulation, equalization, multiplexing, etc.) and OSI layer 6 ie Presentation layer (encoding area including analog-to-digital conversion and signal compression)

PROBLEM DESCRIPTION

ECG (Electrocardiogram) is a medical test that records the electrical activity of the heart over a period. It is used to detect a variety of heart-related problems such as arrhythmias, heart attacks, and heart failure. Here are some common problem detections that can be identified through an ECG:

Arrhythmias: ECG can detect irregular heart rhythms such as atrial fibrillation, ventricular tachycardia, and bradycardia.

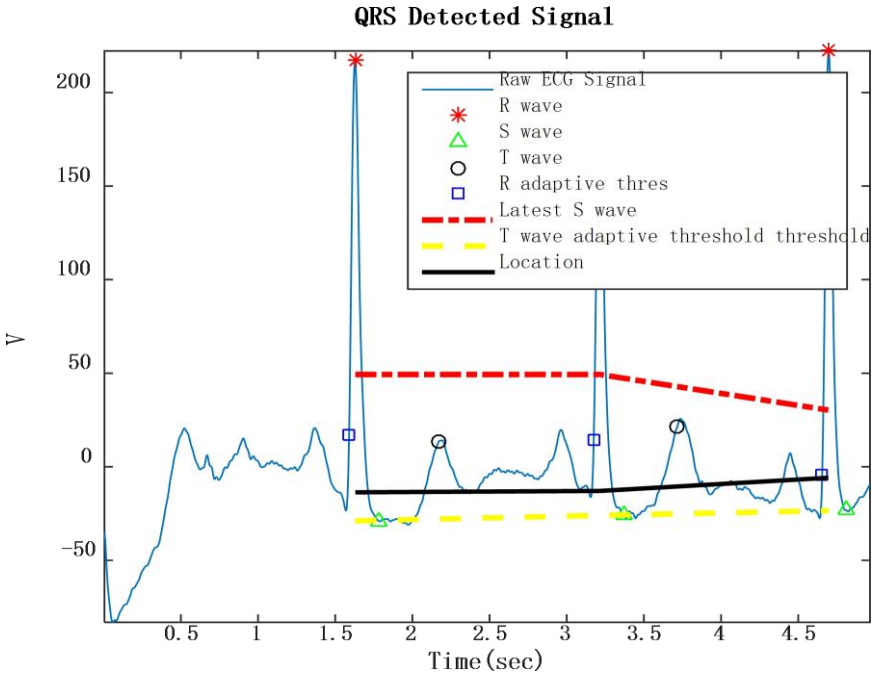
Myocardial infarction (heart attack): ECG can detect changes in the electrical activity of the heart that are associated with a heart attack.

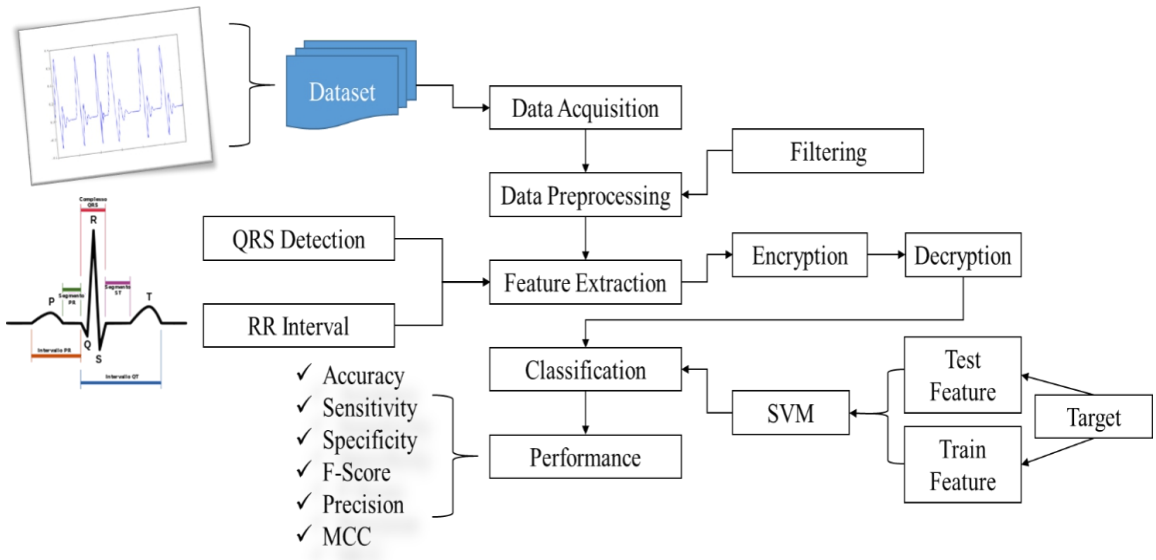
Heart enlargement: ECG can detect changes in the electrical patterns that can indicate that the heart is enlarged.

Conduction abnormalities: ECG can detect abnormalities in the electrical pathways of the heart, such as bundle branch block, that can lead to serious heart conditions.

Other cardiac abnormalities: ECG can also detect other cardiac abnormalities such as pericarditis, which is inflammation of the sac that surrounds the heart.

III.FIGURES





IV.LITERATURE SURVEY

• Signal acquisition and reconstruction, which includes measuring, storing the physical signal, and possibly later reconstructing o r approximating the original signal. For digital systems this often includes sampling and quantization.
• Improvements such as noise reduction, image enhancement and noise reduction.
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“Using Better Decision Making” More Information More Information More Information More Information More Information or e Information More Information More Information More Information More Information More Information Experimental and Aut omatic Analysis of Sleep Disorders in Research”, Rajendra Acharya U (2010)).Electroencephalography (ECG) signals are widel y used to study brain activity, for example to determine sleep level. This ECG signal is non-linear and non
tationary. Sleep staging is difficult with visual interpretation and linear techniques. Therefore, we use a nonlinear technique, High Order Spectrum (HOS), to extract hidden information from sleep ECG signals.
Our results show that the proposed method can identify sleep stages with 88.7% accuracy.
E Malar, M Gowtham, M kalaikamal and Smuthu krishnan 'ECG waste driving safety' (2012).
In the current situation, more and more people have to commute to different places. As the number of vehicles and their moveme nts on the road increase, the accidents are constant.

In this study, special bispectral and bispectral maps of different sleep stages are presented. These can be used as sources for many diagnoses. A number of HOSbased features were extracted from maps of different sleep stages (awake, rapid eye movement (REM), non-REM stages 1-4) and found significant with p values below 0.001, Tested using ANOVA.

These features are fed into a Gaussian mixed model (GMM) for automatic analysis.
Preventing/reducing fatal traffic accidents has become a nightmare for the police. However, the efforts of the authorities were in v ain. Surprisingly, studies show that around 50% of accidents worldwide are caused by drunk driving. Any technology or equipme nt used to reduce such deaths would help. "Smart cap" technology helps prevent deaths (caused by drunk and drowsy driving) and is a way to save thousands of lives.
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In the current situation, more and more people have to commute to different places. As the number of vehicles and their moveme nts on the road increase, the accidents are constant.
"Smart cap" technology captures drivers' brain waves to prevent them from committing crimes due to drunk driving. It is based o n the fact that alcoholics have reduced alpha activity and increased theta activity (alpha and theta activity are different frequencies of brain activity). The smart cap has five electrodes embedded in the form of a headband to collect electrocardiographic signals.
The received ECG signal is preprocessed and sent via Bluetooth to a smart unit equipped with a microprocessor. The load process or algorithm is used to decompose the ECG signal into alpha, beta, gamma and delta parameters.
The parsed ECG signal is used to analyze alcohol. The voltage generated by the algorithm is used to operate a relay system based on the presence or absence of abnormalities in the EKG. The keyhole in the car engine has been replaced with a relay system. The refore, the motor will only run if there is no significant abnormality in the decoupled ECG signal.

EEG is an electrical recording taken from the brain.
Every neuron in the brain generates tiny electrical currents; When many neurons are active, the number of these small charges ca n be detected in the skin. Small electrodes placed on the scalp sense this electrical activity, which expands and closes as the brain does not move (nerve oscillations). These brain cells show the activity of different areas in the brain.
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V. CONCLUSIONS

“Using Better Decision Making” More Information More Information More Information More Information More Information More Information More Information More Information More Information More Information More Information Experimental and Automatic Analysis of Sleep Disorders in Research”, Rajendra Acharya U (2010)). Electroencephalography (ECG) signals are widely used to study brain activity, for example to determine sleep level. This ECG signal is non-linear and non-stationary. Sleep staging is difficult with visual interpretation and linear techniques. Therefore, we use a non-linear technique, High Order Spectrum (HOS), to extract hidden information from sleep ECG signals. In this paper, a new heart rate algorithm is proposed for ECG signals from the MIT/BIH database. Give a brief description of the ECG classification. Electrocardiography is widely used to diagnose various heart diseases. Many techniques and modifications for ECG signals have been proposed in the early literature. This app provides details on noise cancellation, waveform detection and heartbeat classification. This article also provides a comparison to evaluate the performance of different proposed algorithms for ECG signals. It also provides existing problems in existing works and guides for this. We note that most noise canceling works using a combination of filters. The QRS complex is often used for heart rate classification.

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