International Journal of Research in Engineering and Science (IJRES)
ISSN (Online): 2320-9364, ISSN (Print): 2320-9356
www.ijres.org Volume 10 Issue 9 ǁ September 2022 ǁ PP. 493-496

Detection of Heart Failure and Arrhythmia Using Stacked Auto Encoded

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Abstract
Electrocardiogram (ECG) is an important noninvasive diagnostic method for interpretation and identification of various kinds of heart diseases. In this work, a new Deep Learning (DL) approach is proposed for automated identification of Congestive Heart Failure (CHF) and Arrhythmia (ARR) with high accuracy and low computational requirements. This study introduces, for the first time, a new ECG diagnosis algorithm that combinesConvolutional Neural Network (CNN) with the Constant-Q Non-Stationary Gabor Transform (CQ-NSGT). The CQNSGT

Keywords
Black Box Testing,Unit Testing,Data Flow Diagrams,Graphical User Interface

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Date of Submission: 08-09-2022 Date of acceptance: 24-09-2022

I. INTRODUCTION

Cardiovascular diseases (CVD) come first all around the world according to World Health Organization (WHO) statistics [1]. Even though preventions have been taken as much as possible in order to save people's lives, estimations conclude that up to 90% of CVD can be preventable

PURPOSE

To develop machine learning algorithms for the first time, a new ECG diagnosis algorithm that combines Convolutional Neural Network (CNN) with the Constant-Q Non-Stationary Gabor Transform (CQ-NSGT). The CQNSGT algorithm is investigated to transform the 1-D ECG signal into 2-D time-frequency representation that will be fed to a pre-trained CNN model

SCOPE

To develop machine learning algorithms for the first time, a new ECG diagnosis algorithm that combines Convolutional Neural Network (CNN) with the Constant-Q Non-Stationary Gabor Transform (CQ-NSGT). The CQNSGT algorithm is investigated to transform the 1-D ECG signal into 2-D time-frequency representation that will be fed to a pre-trained CNN model

II. RELATED WORK

Privacy-preserving diverse keyword search and online pre-diagnosis in cloud com- puting

With the development of Mobile Healthcare Monitoring Network (MHMN), patients' data collected by body sensors not only allows patients to monitor their health or make online pre-diagnosis but also enables clinicians to make proper decisions by utilizing data mining technique. However, sensitive data privacy is still a major concern. In this article, we propose practical techniques for searching and making online pre-diagnosis over encrypted data. First, we propose a new Diverse Keyword Searchable Encryption (DKSE) scheme which supports multi-dimension digital vectors range query and textual multi-keyword ranked search to gain a broad range of applications in practice.

HealthDep: An efficient and secure deduplication scheme for cloud-assisted ehealth systems

In this paper, we analyze the inherent characteristic of electronic medical records (EMRs) from actual electronic health (eHealth) systems, where we found that first, multiple patients would generate large amounts of duplicate EMRs and second, cross-patient duplicate EMRs would be generated numerously only in the case that the patients consult doctors in the same department. We then propose the first efficient and secure encrypted EMRs deduplication scheme for cloud-assisted eHealth systems (HealthDep). With the integration of our analysis results, HealthDep allows the cloud server to efficiently perform the EMRs deduplication, and enables the cloud server to reduce storage costs by more than 65% while ensuring the confidentiality of EMRs.

EXISTING WORK

Earlier work on privacy-preserving machine learning [34], [35] has been proposed to provide privacy preservation during the training phase, but these schemes lacked imple- mentation. Thereafter, increasing schemes have been pro- posed to provide privacy protection. Fu et al. [36] present- ed a privacy-preserving non-negative matrix factorization method based on addition HE, which supports matrix fac- torization with encrypted data, but these matrix parameters can be obtained by another party during the computa- tion process, it will lead to the potential privacy leakage.

LIMITATIONS

Less accuracy
low Efficiency

PROPOSED WORK

A novel method based on denoising filters, consecutive difference method, pixel tracking and k-means clustering method is developed to detect locations of R peaks on ECG signals..A hybrid model based on machine learning models is developed to classify CVD on ECG signals into 7 different classes such as normal sinus rhythm (NSR), atrial premature beat.

Contribution Work

High accuracy
High efficiency

Sample Screens

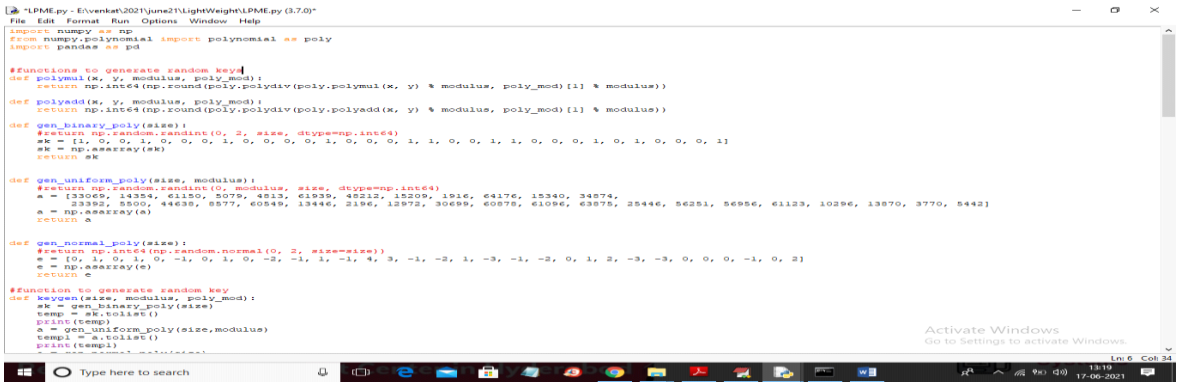
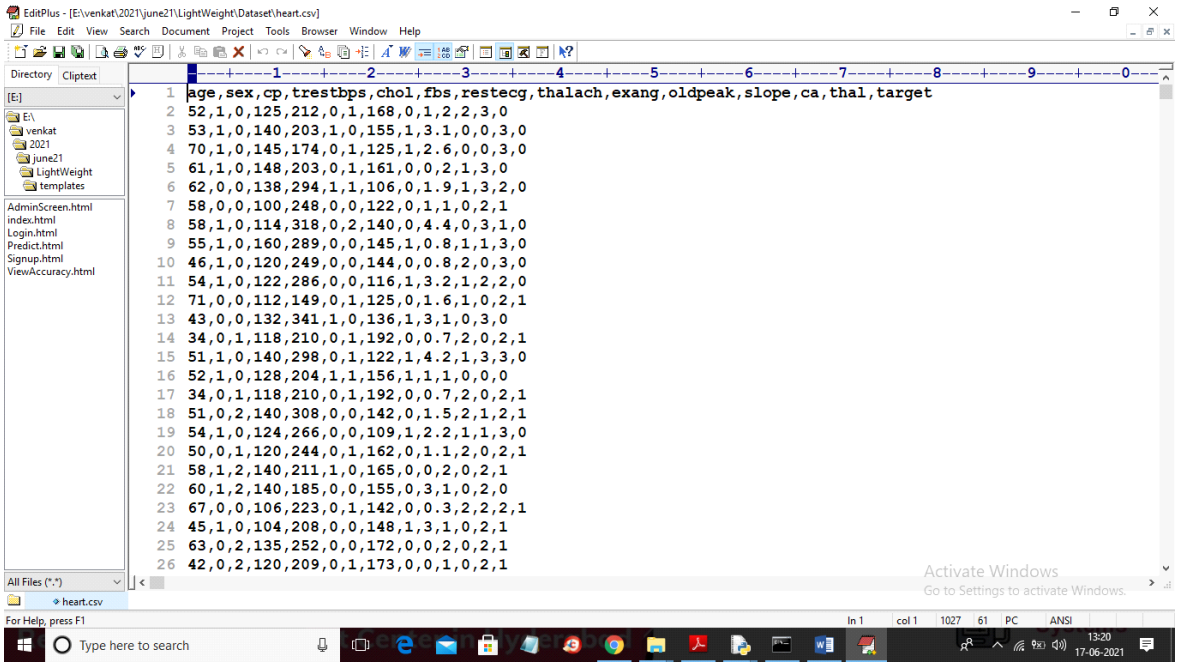


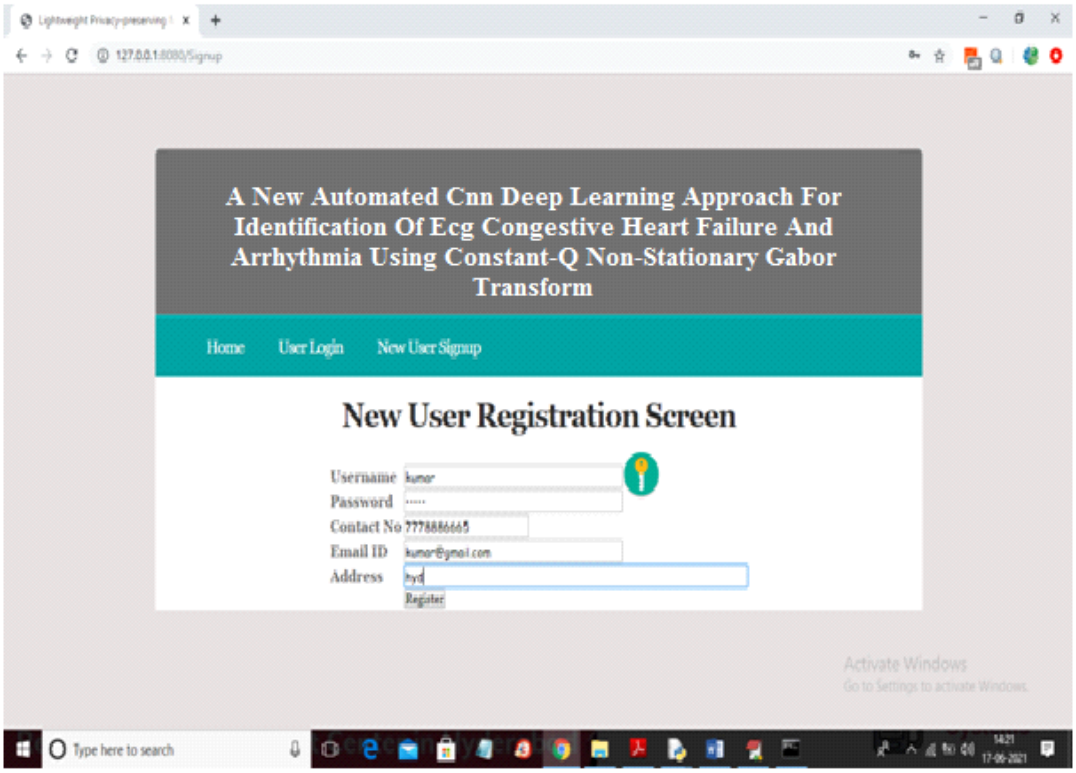
FIG 1

To implement this project we are using Heart Disease Dataset and below screen shot showing some records from dataset



SCREEN 2

In above screen click on 'New User Signup' link to get below signup screen



SCREEN 3

III. CONCLUSION

In this paper, a new automated DL approach is proposed for ECG multiclass diagnosis of CHF, ARR, and NSR with high accuracy. The proposed ECG diagnosis system investigates the CQ-NSGT algorithm for transforming the input 1-D ECG signal into 2-D time-frequency representation which

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