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ANALYSIS OF NEURODEGENERATIVE DISEASES CLASSIFIED FROM THE EXPRESSION OF SALIENT BRAIN PATTERNS

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ABSTRACT:

Neurodegenerative diseases affect the central nervous system. Neurodegeneration is a combination of two words in which the nerve means "neurons" and degeneration means "progressive loss". The general definition of a neurodegenerative disease is a progressive loss of memory, including loss of neurons and loss of neuronal structure and death of neuronal trainees, leading to a loss of neuronal function. Alzheimer's disease progresses from mild to moderate and becomes worse. Symptoms of the disease include mental abilities, memory, and loss of behavioural changes. Starting with the younger age group from 45 to 65 years old and old age, and even affecting any age group. Blue - the normal part of the brain, and red - as associated with pathology. The classified classification AD uses a controlled learning process supporting the vector machine (SVM).

KEYWORDS: Support vector machine (SVMs), Alziemherdiseases (AD).

INTRODUCTION:

Neurodegenerative diseases include a wide range of psychiatric symptoms, although evolution is not directly related to the visual analysis performed by radiologists who are unlikely to quantify systematic differences. This document provides a new fully automated image analysis method to detect various brain models related to the presence of neurodegenerative diseases, therefore determination with systematic differences, objective comparison of arbitrary neuropathy. Accurate elucidation of Alzheimer's disease based on the characteristics of the target-oriented map is performed on the database image. In this article, we provide a fully automated method of image analysis and extract the features of the input image of the brain and region of interest identified using the K mean nuclear algorithm to detect pathology and normalize the brain Trying to approach the classification of brain images. In principle, in this field, a single magnetic resonance image is taken in consideration of disease analysis. When analysing structural images of the MR brain, the main objective is to identify anatomical changes related to dysfunction. Since a single magnetic resonance may not display all the necessary parameters, another modality image is required to make a better diagnosis. Anatomical interpretation can be used to combine corresponding parameters of different modalities in one image, which is very useful for physicians. Anatomical interpretation is the process of combining related information from a set of images of one scene into one image and the resulting fused images are more useful and complete than any of the input images. The input image can be multivariate, multimodal, multifocal or multiple. Image fusion algorithms can be done at the functional level. The constructed image must store all necessary information from the input image. The algorithm for merging functional levels works with the function extracted from the source image. Matching card images are commonly used to search for specific patterns in the anatomical region in structural brain magnetic resonance imaging (MRI) used to identify Alzheimer's disease. Integrated images can be executed with multiple images with the same type of information. It is commonly used to detect Alzheimer's disease. Integrated images can be executed with multiple images with the same type of information. Therefore, this combined information may be more useful for diagnosing a disease to a physician.

PREVIOUS WORK:

A. MARCUS.D, WANG.T,ET.AL[2007]: The authors proposed that a series of studies using open access imaging studies are a series of magnetic resonance imaging data sets available for research and analysis. The initial data set consists of a collection of cross-sections of several subjects of a typical age. For each subject, three or four separate T-1 weighted magnetic resonance scans of images obtained in a single imaging session are included. Acquisition of multiple Intrasense has a very high ratio of contrast to noise, and data comparison with a wide range of analytical methods including automatic calculation analysis is possible.

B. PADILLA .P, LOPEZ .M, ET.AL[2012]: The authors proposed the method of a computer-aided diagnosis (CAD) for the diagnosis of Alzheimer's disease on the basis of nonnegative matrix

factorization (NMF) and vector support machines. CAD tools are designed to study and classify functional images of the brain. For this purpose, two different sets of data for a single photon emission computed tomography (SPECT) and positron emission tomography have been selected. These datasets are analyzed by applying the Fisher's discrimination factor and the NMF function and extracting the characteristics relevant to the function selection. The resulting data set, converted by NMF, is classified based on the SVM-based classifiers.

C. ANNA WANG, ET.AL[2006]: The authors proposed a wavelet transformation method for image fusion. Wavelet transformation is a valid approach in the field of image fusion. In this article, the author explained the work of improving image content by merging images such as computed tomography and magnetic resonance images to provide additional information on the doctor's plan and clinical treatment system. This article is aimed at demonstrating the use of wavelet transformation for multimodal medical image fusion. In this research, we will explain the selection of wavelet functions and the use of the merging algorithm based on the fusion of CT and MRI.

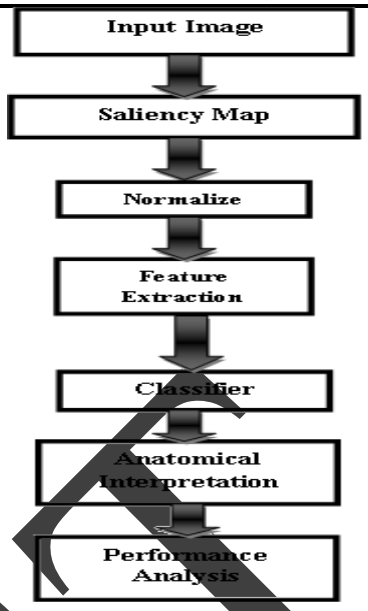
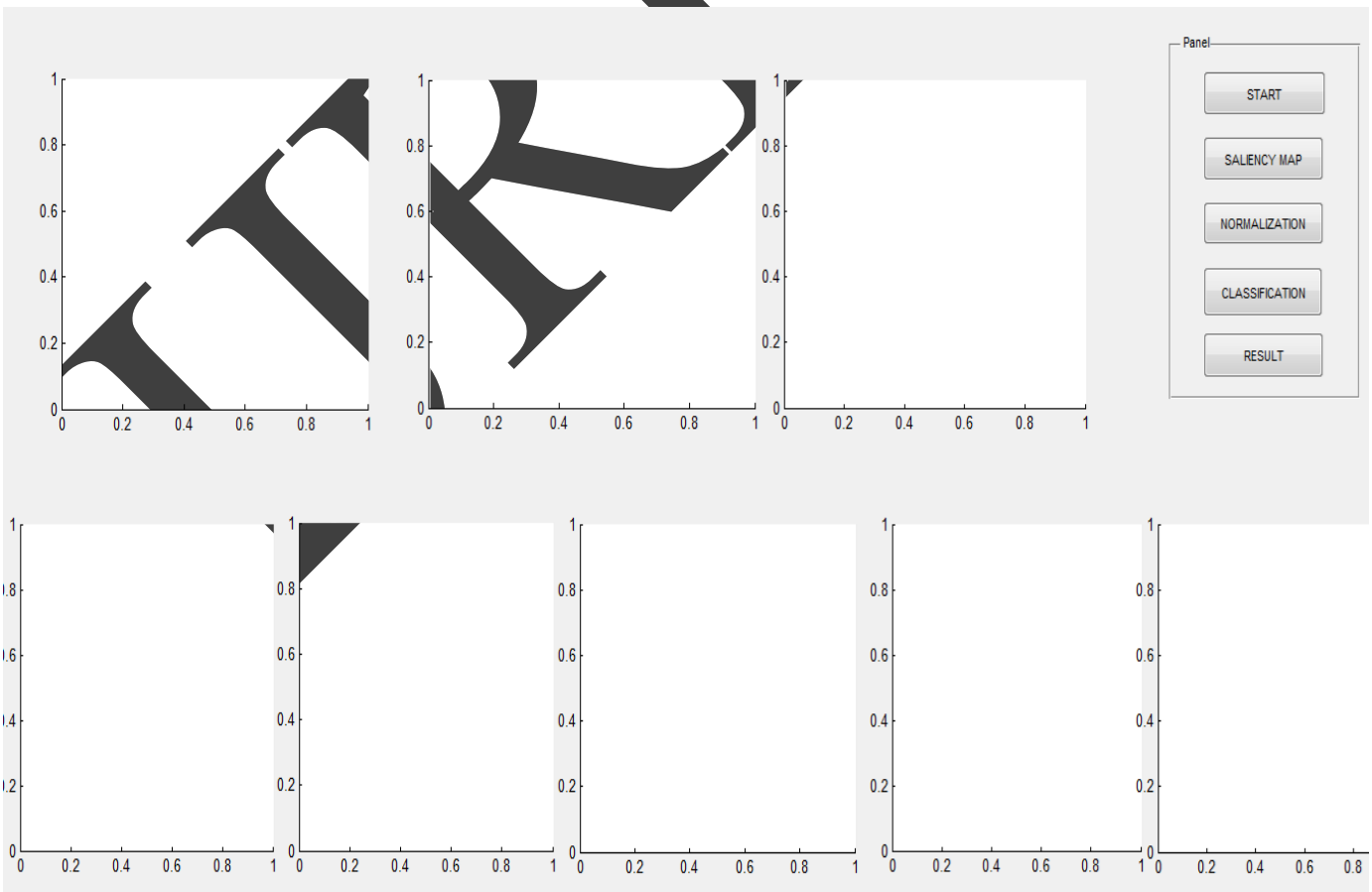


Fig 1

Fig 1 shows Flowchart and overview of the proposed method. The significance map of the selected region is extracted and then the k-method method of the learning algorithm core optimally fuses this information for the SVM classifier to compare the classification model with the corresponding map of the anatomical region Generate both.

PROPOSED WORK:



METHODS:

In this method, the function of the nucleus is performed to extract traits for the detection of neurodegenerative Alzheimer's disease in the brain image. The input image of the brain is converted into a gray image, processed and becomes a wonderful image of the map. After the map of significance is obtained, the normalization of the map of significance is performed, and for the normalized image, the normalization of the kernel is used to extract image functions. Finally, the SVM classifier is used to classify characteristic values and to identify the anatomical region present in the brain image.

THIS WORK IS CARRIED OUT IN FOLLOWING STEPS:

- **SALIENCY MAP:**

This gives the saliency map of this input image mapping each input image to the neighbouring pixel function so that the degree of difference is calculated using the Euclidean function. Selection is usually computed from the contrast between a given location and its surroundings. Each feature displays a complete measure using a targeting map that combines relevant information from one piece of information into a global measure.

- **NORMALIZATION:**

Means changing the Intensity, Coordinates values, etc…., it is a process of changing the pixel intensity values. It is also called contrast stretching orhistogram stretching. In normalization process same constant dimensions are identified and differentiated, so that it is used to produce anatomical regions.

- **KERNEL FEATURE EXTRACTION:**

Due to the growing popularity of teaching methods, known as vector machine vehicles, the kernel method is used to extract features. Computed from the point of view of the k-medium kernel method, so that functions can be extracted.

- **SVM CLASSIFIERS**

Vector machine support is a supervised learning model related to learning algorithms used to analyse data, determine patterns used in the classification process, and compare data prepared for accurate classification.

- **ANATOMICAL INTERPRETATION:**

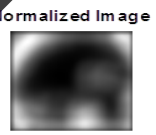
The red area is pathology, and the blue area is the normal identification of brain diseases. Thus, an anatomical interpretation is made.

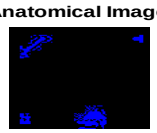
- **PERFORMANCE ANALYSIS:**

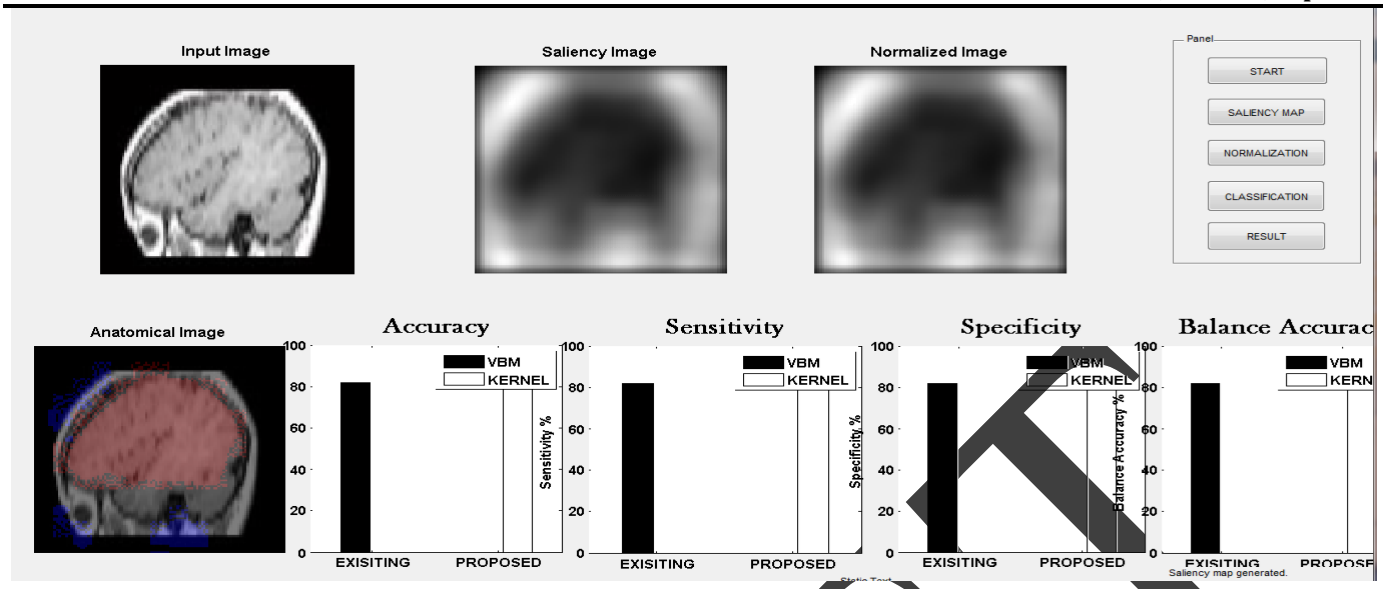
The performance analysis is based on accuracy, sensitivity, and specificity.

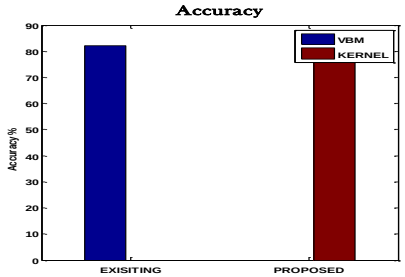
RESULT:

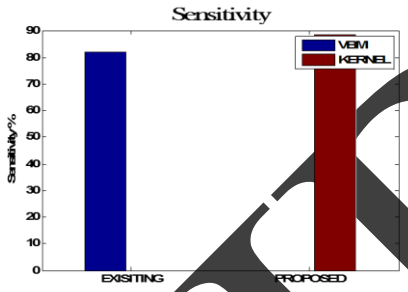
Input image

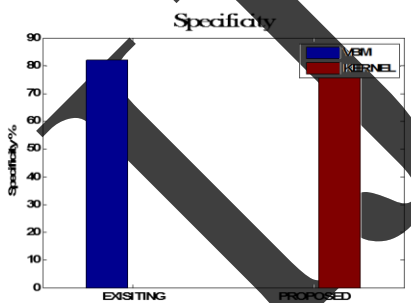


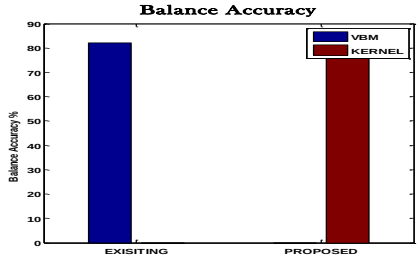












CONCLUSION:

In this article, automatic image analysis is performed by applying the k-kernel method, which is very useful for differentiating neurodegenerative diseases with targeting maps, normalization, and better accuracy. Thus, the red area in the image describes the pathology, and the blue area of the image is normal. The sensitivity, specificity, and accuracy of the equilibrium can be obtained using the kernel k-methods and the accuracy of the SVM method.

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