

Heart Disease Prediction and Analysis using PCO, LBP and Neural Networks

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Abstract : Many diseases have been invited to human body due to the changes that occur in lifestyle. In Asian subcontinent as report of WHO the main cause of death is due to heart or cardiovascular disease. The primary requirement of the system is to reduce the symptoms dataset since there are many symptoms that leads to heart disease so that can take easy decision and treat clinically. In this paper many kinds of heart disease and symptoms responsible for that were discussed. In this paper initially heart local binary pattern and PCA have been used along with artificial neural network for heart disease prediction. Where LBP and PCA are for feature extraction and feature set size reduction and neural network for classification and verifying accuracy of the system. The complete prediction system have been developed with Matlab tool and predicts almost 95% of heart problems.

Keywords : Principle component analysis, local binary pattern, neural network

I. INTRODUCTION

In the field of medical research heart disease which is also known as cardiovascular disease has become a common issue for medical practitioners. Still heart disease prediction is not a robust even many methods were applied for prediction of both disease and expenses. Due to urgency of diagnosis study of heart disease has become a very important thing in medical research field. Decision made by discussion of image processing along with diagnosis data helps a lot for quick decision and diagnosis before surgery. Delayed surgery can be very much prevented by means of the above method.

It is a difficult task to predict Heart disease in medical Science field. A classification method has been used for predicting heart disease in this paper. For detection of possibility if heart disease occurrence needs a decision support system to be developed. For various kinds of disease now a days present medical field takes a lot of time to analyze. And even for various kinds of disease there are a lot of treatment available in medical field. Heart disease is the most threatening disease among them which occur immediately by reaching some limitations and its cannot be observed with direct eyes. Death of the patient may be result of improper diagnose that cannot be compromised by anyone. For good decision making process computer based systems can be developed which can be taken to cost effective and proper treatment. For managing healthcare and patient data hospital information systems have been used by many

hospitals. The ultimate aim of this paper is to design a software system that extracts multiple features related to heart disease with the help of database record of past heart disease patients. Thus for solving complicated problems for detection heart disease this system can be used which can help medical practitioners to make a smart decision on treating patients. Even this system makes treatment cost effective.

Diagnosis based on true imaging is very helpful for medical practitioners for detecting medical images for heart disease predicting bad image quality or disturbed image leads to poor prediction. By injecting contrast to human body performance of Angiographic and interventional radiologic techniques are performed. Organs can be observed and repaired using catheter even needle replacement is done under fluoroscopic guidance. An example for the above method is angioplasty, which is done by threading catheter into obstructed vessel. Blood supply to the tissue has been improved by inflating attached balloon for opening the vessel. For increasing blood supply in vessel of heart, abdomen and legs the above mentioned method is commonly used. Still the above method is complex which involves a huge team of medical practitioners including nurses, doctors and technologists. Risk of surgery and anesthesia for people can be avoided by angioplasty and image-guided procedures. Images with higher clarity is need for accurate diagnosis of patients data. More specific information are provided by this interventional services and also for patients undergoing the above procedures[1]-[4]. CAD is normally a degenerative disease apart from birth defects and these disease are uncommon before the age of 30 and its common for the people above 60 years. Common reporting says one-fourth of the people will have heart attack[5]. There are many imaging systems that acquire heart images commonly X-ray, CT and MRI by which angiogram has been performed. Among them atherosclerosis is commonly seen on people which is a chronic inflammatory seen in arteries by presence of atherosclerotic plaques. Under the term of cardio vascular disease all clinical signs and symptoms of atherosclerosis are summarized.