

HEPATITIS C DETECTION USING MACHINE LEARNING

ABSTRACT

Hepatitis C is a blood-borne infection of the liver caused by the hepatitis C virus (HCV). It is a major public health threat, which can be treated if diagnosed early, but unfortunately, many people with chronic diseases are not diagnosed until the final stages. Early detection of hepatitis c is crucial for effective treatment and prevention of serious complications. Machine learning and its techniques can be very helpful in diagnosis. This work titled “Hepatitis C detection using machine learning” aims to develop a machine learning model to predict hepatitis c to facilitate early detection and to improve patient outcomes. This study explores the effectiveness of machine learning techniques in the prediction of treatment response in hepatitis c patients.

From the above three papers, we get to know that different models were used for the detection of hepatitis c disease. First paper is the detection and classification of hepatitis disease using selective features. Second paper focuses on performance evaluation of the proposed Intelligent Hepatitis C Stage Diagnoses System (IHSDS) empowered with machine learning in detection of stages of Hepatitis C using ANN. Third paper aims at performances of classifiers and tools on multi and binary class labels of the same HCV datasets.

The proposed system is the comparative study of three algorithms Random Forest (RF), Artificial Neural Network (ANN), Support Vector Machine(SVM). The performance of these algorithms are compared to classify hepatitis c disease under four classes which are no fibrosis, mild fibrosis, moderate fibrosis and severe fibrosis/cirrhosis. An automated system can be very helpful to assist medical experts and even make automated disease predictions without any human mistakes. Patients can diagnose their condition without the assistance of a medical expert. Additionally , a web interface will be created to allow users to input parameters and receive the result. The project will follow a structured methodology encompassing data preprocessing, model development, training, evaluation and deployment.

In this study, the dataset titled “HCV-Egy-Data” is taken from the UCI machine learning repository. The dataset contains 29 attributes including 1 class variable and 28 features and has 1385 records of patients with different stages of HCV.

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