

LITERATURE SURVEY

Statistical Machine Learning approaches to Liver disease prediction

1. A Comparative Study on Liver Disease Prediction Using Supervised Machine Learning Algorithms

A.K.M Sazzadur Rahman, F. M. Javed Mehedi Shamrat, Zarrin Tasnim, Joy Roy, Syed Akhter Hossain

ResearchGate – 2019

Chronic Liver Disease is the leading cause of global death that impacts the massive quantity of humans around the world. This disease diagnosis is very costly and complicated. Therefore, this paper evaluates the performance of different Machine Learning algorithms in order to reduce the high cost of chronic liver disease diagnosis by prediction. Six machine learning techniques have been applied including Logistic Regression, K Nearest Neighbors, Decision Tree, Support Vector Machine, Naïve Bayes, and Random Forest. The performance was evaluated on different measurement techniques such as accuracy, precision, recall, f-1 score, and specificity and the result was that LR achieved the highest accuracy.

2. Machine learning-based liver disease diagnosis: A systematic review

Rayyan AzamKhan, Yigang Luo, Fang Xiang Wu

ScienceDirect – 2022

This paper mainly focuses on the computer-aided diagnosis of hepatic lesions in view of diffuse- and focal liver disorders. This is based on three image acquisition modalities: ultrasonography, computed tomography, and magnetic resonance imaging. Insightful analysis is presented for each preliminary step, particularly preprocessing, attribute analysis, and classification techniques to accomplish clinical diagnostic tasks. In preprocessing denoising, deblurring, and segmentation methods are used. Denoising is mainly performed with nonlinear models.

3. Diagnosing of Liver Disease Prediction in Patients using combined Machine Learning Models

Chokka Anuradha, D Swapna, Balamuralikrishnan Thati

IEEE

In the human body one of the most important organs is the liver. If the regular functionality of the liver is disturbed then this condition is called disease-affected liver. Therefore, an early stage of disease detection is more important which helps in disease prevention at starting stage with small medications. But, it is too difficult to identify Liver disease at the early stages because symptoms are very less at the starting stage. Lab results with physical examination are involved in the Traditional methods. This paper aims to represent a Diagnosing for Liver disease prediction in Patients using Combined Machine Learning Models. Optimized three machine learning algorithms are used for the accurate diagnosis of liver disease and they are Artificial Neural Networks (ANN), Decision Trees, and K-Nearest Neighbors (KNN). With the help of these algorithms, given data is classified and results are produced. The future data is predicted with the help of past and present data. The accuracy results are produced by comparing three classification algorithms.

4. Statistical Machine Learning Approaches to Liver Disease Prediction

Fahad Mostafa, Easin Hasan, Morgan Williamson, Hafiz Khan

MDPI - 2021

ML algorithms are trained to detect the possibility of liver disease to assist healthcare workers. Correlation of chosen variable with the risk of liver disease is performed to train the model. ML methods were able to identify the liver disease with high accuracy. The PCA results showed five important factors for liver disease diagnosis: AST, ALT, GGT, BIL, and ALP. In a real situation, a clinician can strongly suspect liver disease using only these five variables, as they are very descriptive for liver function. The ratio of ALT and AS denotes the cause of a liver injury. GGT and ALP increase in circulation with the severity of a liver injury. Additionally, the injury proximity to the bile duct is determined by the concentration of ALP. This study shows several machine learning approaches with PCA, which outperformed the classification. Among three ML classification methods, the performance of SVM and RF is better than ANN.

5. Liver Disease Prediction System using Machine Learning Techniques

Rakshith D B, Mrigank Srivastava, Ashwani Kumar, Gururaj S P

IJERT – 2021

In this paper risk of liver disease for a person is predicted based on the blood test report results of the user. With the dataset used for this project, 100 % accuracy is obtained for SVM model. The data preprocessing was done using Jupyter Notebook and Desktop Application was Implemented using Sypder IDE. The programming language which was used is python and machine learning Sklearn was used to build the model using classification algorithm like KNN, SVM, Naive Bayes and ANN.

6. Machine Learning Approaches for Liver Disease Diagnosing

Bilal Khan, Rashid Naseem, Mumtaz Ali, Muhammad Arshad, Nazir Jan

International Journal of Data Science and Advanced Analytics – 2019

However, this study proposes a new model based on CHIRP methods for the early finding of liver disease. This examination centre around MAE, RAE, and Accuracy assessment measurements for the benchmarking of the proposed model with other existing models. The exploratory outcomes show a better consequence of applying CHIRP assessing on MAE and RAE while utilizing the Accuracy of the exhibition of RF and MLP is seldom productive than CHIRP. The outcomes acquired utilizing the proposed model are; MAE 0.2870, RAE 58.8765%, and Accuracy is 71.30%, which demonstrates that this method performs well as opposed to other people.

7. Statistical Machine Learning Approaches to Liver Disease Prediction

Robin Biju

International Journal of Scientific Research and Engineering Development – 2022

This study attempts to find an appropriate machine learning algorithm that can determine whether a person has liver disease or not given a dataset containing biological and diagnostic data of 583 Indian patients. Using certain characteristics such as total bilirubin, direct bilirubin, alkaline phosphatase, total protein, albumin, and globulin, this software can determine whether a patient has liver disease or not.