

VISUALIZING AND PREDICTING HEART DISEASES WITH AN INTERACTIVE DASH BOARD

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LITERATURE SURVEY

| S.NO | PAPER TITLE | KEY POINTS |
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| 1 | Design And Implementing Heart Disease Prediction Using Naive Bayesian | An application based Smart heart prediction system is proposed using Naïve Bayes and this model has provided accuracy of 89.77% |
| 2 | Heart Disease Identification Method Using Machine Learning Classification in E-Healthcare | Feature selection algorithm is designed with SVM to identify heart disease. Optimization methods are used to further increase the performance of a predictive system for HD diagnosis. |
| 3 | Prediction of Heart Disease by Mining Frequent Items and Classification Techniques | Data mining classification methods are used for prediction and Naive Bayes has given highest accuracy. |
| 4 | An Intelligent Clinical Decision Support System Based on Artificial Neural | Proposed Correlation-based feature selection (CFS) and Multilayer Perceptron classifier for prediction. |

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| | Network for Early Diagnosis of Cardiovascular Diseases in Rural Areas. | |
| 5 | Survey on Prediction of Heart Disease Using Data Mining Techniques. | Measured the accuracy using different accuracy parameter of data mining algorithms and proposed that Support Vector Machine technique is an efficient method for predicting heart disease. |
| 6 | Intelligent Cardiovascular Disease Risk Estimation Prediction System | Used K-Nearest Neighbour algorithm and achieved an accuracy of 92.30% and uses less number of attributes for the prediction. |
| 7 | Heart diseases prediction with data mining and neural network techniques | Hybrid techniques are incorporated and various data mining techniques are compared and achieved higher accuracy. |
| 8 | Heart Disease Prediction using Machine Learning | Compares the accuracy score of various machine learning algorithms and proposed that random forest algorithm has given highest accuracy score of 90.16%. |
| 9 | Evaluating ensemble prediction of coronary heart disease using receiver operating characteristics. | Combines KNN, ANN and SVM using Voting Technique. As ensemble method end up acquiring highest accuracy, more models will increase scope of the trend. |
| 10 | An Intelligent Learning System based on Random Search Algorithm and Optimized Random Forest Model for Improved Heart Disease Detection. | Two algorithms were hybridized in this paper, Random search algorithm and Random forest model have achieved the highest accuracy of 92.33%. |

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| 11 | Cardiovascular disease detection using a new ensemble classifier. | A hybrid methodology using rough sets, naive bayes, NN is proposed and it achieves 86.8% As a future work, combining methods such as bayesian combiner is explored. |
| 12 | Heart Disease Prediction using Machine Learning Techniques | Predicts whether a patient will develop heart disease or not. This paper compares machine learning algorithms and proposed that K-nearest neighbours algorithm has given highest accuracy. |

Summary:

- Most of the papers used attribute reduction method since more attributes consumes more time for classification.
- But considering only few factors for prediction will not give accuracy precisely.
- Some common influencing factors such as CPT (Chest Pain Type), RECG (Resting electrocardiographic (ECG)) and indirectly influencing factors such as Alcohol and Obesity are not considered. Without using these important factors, the prediction could not be given accurately.
- System can also be improvised by using ensemble machine learning model.
- The more accuracy can be achieved through hybridization of two or more algorithms.
- So, it is preferred to use a combination of algorithms to achieve higher accuracy.

References:

1. A. N. Repaka, S. D. Ravikanti and R. G. Franklin, "Design And Implementing Heart Disease Prediction Using Naives Bayesian," 2019 3rd International Conference on Trends in Electronics and Informatics (ICOEI), Tirunelveli, India, 2019, pp. 292-297, doi: 10.1109/ICOEI.2019.8862604.
2. J. P. Li, A. U. Haq, S. U. Din, J. Khan, A. Khan and A. Saboor, "Heart Disease Identification Method Using Machine Learning Classification in E-Healthcare," in IEEE Access, vol. 8, pp. 107562-107582, 2020, doi:0.1109/ACCESS.2020.3001149.
3. S. Nayak, M. K. Gourisaria, M. Pandey and S. S. Rautaray, "Prediction of Heart Disease by Mining Frequent Items and Classification Techniques," 2019 International Conference on Intelligent Computing and Control Systems (ICCS), Madurai, India, 2019, pp. 607-611, doi: 10.1109/ICCS45141.2019.9065805.
4. S. Harjai and S. K. Khatri, "An Intelligent Clinical Decision Support System Based on Artificial Neural Network for Early Diagnosis of Cardiovascular Diseases in Rural Areas," 2019 Amity International Conference on Artificial Intelligence (AICAI), Dubai, United Arab Emirates, 2019, pp. 729-736, doi: 10.1109/AICAI.2019.8701237.
5. S. Chatterjee, Y. Jaggi and B. Sowmiya, "Survey on Prediction of Heart Disease Using Data Mining," 2019 International Conference on Intelligent Sustainable Systems (ICISS), Palladam, India, 2019, pp. 341-344, doi: 10.1109/ISS1.2019.8908062.
6. F. Mendonca, R. Manihar, A. Pal and S. U. Prabhu, "Intelligent Cardiovascular Disease Risk Estimation Prediction System," 2019 International Conference on Advances in Computing, Communication and Control (ICAC3), Mumbai, India, 2019, pp. 1-6, doi: 10.1109/ICAC347590.2019.9036738.

7. B. S. S. Rathnayake and G. U. Ganegoda, "Heart Diseases Prediction with Data Mining and Neural Network Techniques," 2019 3rd International Conference for Convergence in Technology (I2CT), Pune, India, 2018, pp. 1-6, doi: 10.1109/I2CT.2019.8529532.
8. Rajdhan, Apurb & Agarwal, Avi & Sai, Milan & Ghuli, Poonam. (2020). "Heart Disease Prediction using Machine Learning". International Journal of Engineering Research and. V9. 10.17577/IJERTV9IS040614.
9. T. Mahboob, R. Irfan and B. Ghaffar, "Evaluating ensemble prediction of coronary heart disease using receiver operating characteristics," 2018 Internet Technologies and Applications (ITA), Wrexham, UK, 2018, pp. 110-115, doi: 10.1109/ITECHA.2018.8101920.
10. A. Javeed, S. Zhou, L. Yongjian, I. Qasim, A. Noor and R. Nour, "An Intelligent Learning System Based on Random Search Algorithm and Optimized Random Forest Model for Improved Heart Disease Detection," in IEEE Access, vol. 7, pp. 180235-180243, 2019, doi: 10.1109/ACCESS.2019.2952107.
11. H. A. Esfahani and M. Ghazanfari, "Cardiovascular disease detection using a new ensemble classifier," 2019 IEEE 4th International Conference on Knowledge-Based Engineering and Innovation (KBEI), Tehran, Iran, 2019, pp. 1011-1014, doi: 10.1109/KBEI.2019.8324946.
12. Shah, D., Patel, S. & Bharti, S.K. "Heart Disease Prediction using Machine Learning Techniques". SN COMPUT. SCI. 1, 345 (2020).