

HDPS: Heart Disease Prediction System

Austin H Chen*, Shu-Yi Huang, Pei-Shan Hong, Chieh-Hao Cheng and En-Ju Lin

Hualien, Taiwan

The diagnosis of heart disease in most cases depends on a complex combination of clinical and pathological data. Because of this complexity, there exists a significant amount of interest among clinical professionals and researchers regarding the efficient and accurate prediction of heart disease.

In this paper, we develop a heart disease predict system that can assist medical professionals in predicting heart disease status based on the clinical data of patients. Our approaches include three steps. Firstly, we select 13 important clinical features, i.e., age, sex, chest pain type, trestbps, cholesterol, fasting blood sugar, resting ecg, max heart rate, exercise induced angina, old peak, slope, number of vessels colored, and thal. Secondly, we develop an artificial neural network algorithm for classifying heart disease based on these clinical features. The accuracy of prediction is near 94%. Finally, we develop a user-friendly heart disease predict system (HDPS), as shown in the following figure.

The HDPS system will be consisted of multiple features, including input clinical data section, ROC curve display section, and prediction performance display section (execute time, accuracy, sensitivity, specificity, and predict result).

Our approaches are effective in predicting the heart disease of a patient. The HDPS system developed in this study is a novel approach that can be used in the classification of heart disease.