عنوان مقاله:

Presenting a model for the diagnosis of heart failure using cumulative and deep learning algorithms: a case study of tehran heart center

محل انتشار:

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خلاصه مقاله:

Coronary artery heart failure is the leading cause of mortality among other cardiac diseases. In most of the cases, angiography is a reliable method for the diagnosis and treatment of cardiovascular diseases. However, it is a costly approach associated with various complications. The significant increase in the prevalence of cardiovascular diseases and the subsequent complications and treatment costs have urged researchers to plan for the better examination, prevention, early detection, and effective treatment of these conditions. The present study aimed to determine the patterns of cardiovascular diseases using integrated classification techniques for analyzing the data of internal medicine patients who are at the risk of heart failure with ۴۵۱ samples and ۱۳ characteristics. Selecting characteristics and evaluating the influential factors are essential to the development of classifiers and increasing their accuracy. Therefore, we investigated the influential factors of the Gini index. In the classification phase, basic techniques were used, including a decision tree, a neural network, and different cumulative techniques such as gradient boosting, random forest, and the novel deep learning method. A comparison revealed that deep learning with the accuracy of ۹۵.۳۳%, disease class accuracy of ۹۵.۷۷%, and health class accuracy of ۹۴.۷۴% could enhance the presentation and results of the neural network. Out findings confirmed that cumulative methods and selecting influential factors are essential to increasing the accuracy of the diagnostic systems for heart failure. Furthermore, the reported practical tree rules emphasized the use of analytical methods to extract knowledge.

کلمات کلیدی:

Data Analysis, Diagnosis of Heart Failure, Cumulative Algorithms, Deep Learning