

Breast Cancer Detection via Tree Algorithms

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Abstract: According to World Health Organization reports, breast cancer is the fifth leading cause of death worldwide. However, if at least five years after the first cell division of the cancer, the disease is diagnosed, the mortality rate of this cancer decreases. Considering the structure of the cancer, one of the important strategies in this field is to examine the molecular properties of the cells. One of the major challenges in this field is to find a high-precision method for detecting this type of cancer. In this paper, using tree classification methods, cancer diagnosis is performed based on the molecular characteristics of the cells. Tree decision algorithms, Baggin and Random Forest methods for predicting breast cancer will be investigated. A simulated dataset will be used to indicate how these methods work. Finally using a "Breast Cancer" dataset which is used in the articles of interest, the performance of these methods has been investigated. The results indicate that the Random Forest algorithm has 98% accuracy, 94% sensitivity and 100% detection, better performance than other methods discussed in this article in early diagnosis of breast cancer.

Keywords: Breast Cancer; Tree decision algorithms; Baggin; Random Forest.

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