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Mixture of expert based thyroid disorder prediction tool to assist physicians for better diagnosis

Shankaracharya
Department of Biotechnology, Birla Institute of Technology, India

Background: Thyroid is one of the most common diseases in the world and has affected more than 200 million people worldwide. Detection of thyroid is a big problem for general practitioners. An expert doctor commonly takes decisions by evaluating the current test results of a patient or by comparing the patient with other patients with the same condition with reference to the previous decisions. Many machine learning and data mining techniques have been designed for the automatic diagnosis of thyroid. However, no any tool is available to the general population for the diagnosis of Thyroid. Hence, Graphical user interface-enabled tool needs to be developed through which medical practitioners can feed patient data easily and find the thyroid diagnose instantly and accurately.

Methods: In this study, mixture of expert method was exploited on the dataset collected from UCI machine learning repository database.

Result and Conclusion: Various models were formulated by changing the parameters of mixture of expert algorithm. While changing the parameters, classification accuracy of certain models were very good whereas in others it was not up to the mark. Therefore, the models were analyzed on the basis of minimum mean square error for prediction of thyroid by this classification method. An overall accuracy of 98.10% was achieved in this study, which is probably the highest in thyroid prediction using computational Intelligence.

Biography

Shankaracharya is working as an associate Lecture and Faculty In-charge of Bioinformatics at Department of Biotechnology, Birla Institute of Technology, Mesra, Ranchi. He has extensively worked on application of Mixture of experts in diagnosis of different non communicable diseases such as Diabetes, Thyroid, hepatitis, parkinsons' disease, Cardiovascular diseases etc. He has published more than 20 papers in peer reviewed journals of national and international repute.

shankaracharya@bitmesra.ac.in