THYROID DISEASE PREDICTION USING ADVANCED MACHINE LEARNING APPROACHES

Hewa Marambage Yasiru Rashan

A dissertation submitted in partial fulfilment of the requirement for
Bachelor of Science (Honours) degree in Computer Science

School of Computing

Informatics Institute of Technology, Sri Lanka
In collaboration with
University of Westminster, UK

2023

ABSTRACT

Thyroid glands disease is the most common endocrine disorder which can be seen around the world after diabetes. The Women between the ages of 17 to 54 are mostly affected by this disease. The last stage of thyroid disease is linked to many disease conditions such as high blood pressure, high cholesterol, cardiovascular problems, depression, and decreased fertility. This disease is caused by the dysfunction of the thyroid glands. Diagnosing the disease at its initial level is a crucial factor for medical treatments. Disease Prediction Systems are widely used in the medical domain with the advancement of artificial intelligence. Many research papers point out different machine learning approaches to predict the stages of thyroid disease. All these existing systems use questionnaire-based systems to identify the disease. There isn't a system which is designed for the patients allowing features such as disease prediction and analysis using symptoms and clinical data of the disease. Due to the lack of knowledge on the types of thyroid disease, patients will ignore the symptoms and severity of the disease at the first place. This will lead to the harmful consequences of the thyroid disease such as thyroid cancer and issues in metabolism and vocal codes.

In this research, the prediction of thyroid disease is developed using clinical data and the symptoms. The patients who have already done their checkups (blood tests) can use this system for analyzing the condition of the disease as Hypothyroid, hyperthyroid and negative using the clinical data of the report. The other users can use the chatbot model for the prediction of thyroid disease. In this approach it uses the symptoms of the disease and classifies the condition as positive or negative. This system acts as a self-diagnostic and informatic service for thyroid disease. For the prediction, the author had used the multiple machine learning model to predict the disease with good accuracy. The chatbot model will be based on the deep learning architecture.

Keywords: Thyroid Disease, Prediction Model, ML, Chatbot Models, Disease Prediction, NLP