Notice for the PhD Viva Voce Examination

Ms Vairale Vaishali Sheshrao (Reg. No. 1670077), PhD scholar at CHRIST (Deemed to be University), will defend her PhD thesis at the public viva-voce examination on Tuesday, 03 November 2020 at 3.00 pm on the Webex Meeting platform.

Title of the Thesis	:	**Development of Personalized Diet and Exercise Recommender System Based on Clinical Data**
Discipline	:	**Engineering**
External Examiner (Outside Karnataka)	:	**Dr Vivek Deshpande** Professor Vishwakarma Institute of Information Technology (VIIT) Survey No. 3/4, Kondhwa (Budruk) Pune – 411048 Maharashtra
External Examiner (Within Karnataka)	:	**Dr Thippeswamy G** Professor and Dean (CSE) BMS Institute of Technology and Management Doddaballapur Main Road Avalahalli, Yelahanka Bengaluru-560064 Karnataka
Supervisor	:	**Dr Samiksha Shukla** Associate Professor Department of Data Science School of Sciences CHRIST (Deemed to be University) Pune Lavasa Campus, Pune Maharashtra

The members of the Research Advisory Committee of the Scholar, the faculty members of the Department and the School, interested experts and research scholars of all the branches of research are cordially invited to attend this open viva.

Registrar

Place: Bengaluru
Date: 24 October 2020

ABSTRACT

The present health scenario indicates that thyroid diseases are a common challenge experienced by most individuals. According to the statistics in India, one out of eight women suffer from thyroid-related conditions. Hyperthyroid, hypothyroid, or thyroid cancer are categories of thyroid disorder. It is imperative to maintain optimum levels of secretion of the thyroid hormones as the imbalance could lead to thyroid diseases. Therefore, thyroid patients must be vigilant regarding their iodine intake and follow a customized daily diet and exercise plan. The diet plan, along with balanced iodine levels, must also be able to meet the patient's nutritional needs. A personalized diet plan could help thyroid patients to be more aware and focused on their body metabolism. Existing recommender systems usually provide generic diet recommendations, and unfortunately, it may not be beneficial to patients suffering from a specific disease.

Content-based Neighborhood-Conditional RBM (CB-NCRBM) model has posited to recommend Top-3 diet and exercise plans for thyroid patients. The proposed model considers the joint probability distribution of different scores using the user profile. Similarly, preference and health scores are estimated based on content features. The model feeds these scores as visible units to conditional RBM. The proposed model also integrates several content-based features such as users' physiological profiles, thyroid disease information, food, and exercise preferences. The proposed recommender model validates the experimental results using recommendation error and classification accuracy metrics. The proposed hybrid model outperforms several popularly used recommendation models, such as collaborative filtering, content-based, and pure RBM models. The system also provides a feedback loop to enhance the quality of the recommended diet and exercise plans based on user experience.

Keywords: Food and Nutrition, Diet and Exercise Recommendations, Thyroid Disorders, Restricted Boltzmann Machines, Content-based Methods, Collaborative-based Filtering Approaches.