MAR BASELIOS
COLLEGE OF ENGINEERING AND TECHNOLOGY
AUTONOMOUS

Thiruvananthapuram - 695015

# In-house Internship Proposal Form

Proposal No. (*for office use only*): Date of Submission:17/04/23

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| 1. | Name, Designation and Dept. of Faculty Mentor1, Mentor2 (if, available) | Ms.PoornaB.R,AssistantProfessor,CSE<br>Dr.JesnaMohan,AssistantProfessor,CSE |
| 2. | Title of the Proposal | **Healthcare Recommender System using Deep ensemble learning** |
| 3. | Prospective Branch of the intern | CSE |

3. Brief Description of the Proposal (Not more than 250 words):

With the development of information and technology, especially with the boom in big data, healthcare support systems are becoming much better. Patient data can be collected, retrieved, and stored in real time. These data are valuable and meaningful for monitoring, diagnosing, and further applications in data analysis and decision-making. Essentially, the data can be divided into three types, namely, statistical, image-based, and sequential data. Each type has a different method of retrieval, processing, and deployment. Additionally, the application of machine learning (ML) and deep learning (DL) in healthcare support systems is growing more rapidly than ever.The main idea of our study comes from ensemble techniques. Numerous studies and data science competitions show that by combining several weak models into one, ensemble models can attain outstanding performance and reliability.

A healthcare recommender system analyses a large amount of patient data which helps to derive insights and assist the prediction of diseases. This system should be intelligent in order to predict a health condition by analyzing a patient's lifestyle, physical health records and social activities. Their main objective is to ensure the availability of the valuable information at the right time by ensuring information quality, trustworthiness, authentication and privacy concerns. As people use social networks to understand their health condition, so the health recommender system is very important to derive outcomes such as recommending diagnoses, health insurance, clinical pathway-based treatment methods and alternative medicines based on the patient's health profile. In particular, the system could deal with complex relationships between medical concepts, resolve medical abbreviations and classification codes and adapt to the user's medical level of expertise. Such a system could also reduce the effects of information overload (*i.e.*, delayed decision making, distraction, waste of time and stress), as it provides a user with those items of interest most relevant for a given case or the current medical context. Health care analytics is a major area in big data analytics which can be incorporated into the recommender system. The health-based recommender system is a decision-making system which recommends proper healthcare information to both health professionals and patients. By using this system, patients are recommended the proper treatment of disease for avoiding a health risk, and health professionals benefit from the retrieval of valuable information for clinical guidelines along with delivery of high-quality health remedies for patients.

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| 4. | Estimated hours of Student activity: | 15 hours |
| 5. | Proposed activity for the students: Students will learn how to do automated text processing using deep ensemble models.Students will learn to do coding using python programming language. The software can be extended to provide recommendations for patients while consulting a doctor. | |
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| 6. | Expected outcomes | |
| | i. By using this system, patients are recommended the proper treatment of disease for avoiding a health risk, and health professionalsbenefit from the retrieval of valuable information for clinical guidelines along with delivery of high-quality health remedies for patients. | |
| | ii.Writingof a journal paper | |
| 7. | Remarks, if any | |

**Name and Signature of Faculty Mentor(s): Ms.Poorna B.R**
**Dr.Jesna Mohan**

**Recommendations:**

SREEJA.S.R

**Dept. Internship Coordinator**
(Name and Signature)

17/4/23

**Head of the Department**
(Signature)

**Recommendations:**

**In-house Internship Coordinator**
(Signature)

**Dean (R&C)**
(Signature)