Informatics Institute of Technology
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Intelligent Human Disease Prediction
Using Machine Learning

A Dissertation By

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Abstract

Today's hospital and medical charges are unbearable for patients with their daily needs and life goals. Hospitals and medical services do most of the costly activities for identifying diseases and the level of disease rather than for medical treatments given for patients, but the whole cost is needed to be paid as medical charges by the patient. This project proposes a solution for identifying individual diseases prior to the initial effect of the disease or before the late stages of the disease. Due to the problem in difficulty of identifying a disease until its later stages, both patients and medical service providers are facing inappropriate activities and operations daily that leads to unwanted drops of medical service throughput and efficiency. Also, that delays first aids and other urgent medical treatments that is needed from the first stages of some diseases.

The project is under the category of machine learning for generating accurate predictions as the main output of the solution. Interest on astronomy and modules that depend on astronomy was a motivation for proposing such a different topic for the project. Also, the real-world scenarios that are related to the proposing innovative technology and their proofs made were definitely inspiring. It was decided to research more about cosmology and the relation between cosmic energy and human body parts which are physical objects. Therefore, it is based on building a relation between an energy and the influence of that energy to identified physical objects. According to the researches, all most of all the rules found to relate these two subjects. The solution is made upon the set of rules researched. An expert system is used to pre-process patient data according to these rules and output the needed parameters to trigger the neural network. The final outcome will be based on the output of neural network whether or not a disease occurrence is found for each period of lifetime. Based on the output of the neural network, expert system simplifies the processed data and render the output to the user. A multi-agent system is used to achieve these tasks and to help the system to be scalable.

Due to heavy charges and fees that a patient is charged for medical services and the unavailability of resources in most of the hospitals in countries like Sri Lanka, the following software system is to be developed to prevent future diseases that a human body is to be affected. A system that is able to predict a person's lifetime diseases will be able to warn the person to have early medical services or to manage and prevent exceptional situations in life. It will help to reduce number of patients with long term diseases and also helps patients to save their time and money. It will stop unexpected diseases from growing up the level of disease without medical services needed in early stages. The above identified problem is mainly affected for patients and further it is a mess for medical services as well. Therefore, the proposed solution brings a huge benefit for the above identified entities. Also, when the people identify their future diseases as a warning to prepare for a solution for the category of disease, they are able to prepare for treatments or applying an insurance for the category identified. According to the accuracy of final outcome of the project, there will be disadvantages for entities like insurance companies, etc.

Keywords: Machine Learning, Disease Prediction, Astrology, Astronomy, Cosmology, Cancer, Disease