


Chapter 12

A Deep Learning Algorithm for Multiple Disease Prediction Using the IoT and Its Implications

N. Gopinath

SRM institute of Science and Technology, India

S. Vijayakumar

 <https://orcid.org/0000-0002-5932-3467>

B.S. Abdur Rahman Crescent Institute of Science and Technology, India

P. Tamilarasan

SRM Institute of Science and Technology, India

Maria Pius Pallan

Dr. D.Y. Patil Vidyapeeth, Pune, India

Swati Dhondiram Jadhav

 <https://orcid.org/0000-0001-8931-3457>

International Institute of Information Technology, India

ABSTRACT

Popular culture portrays chronic disease patients as unable to perform daily tasks and needing constant medical attention. Chronic diseases like cardiovascular disease, pneumonia, renal disease, and diabetes cause the most death and disability

DOI: 10.4018/979-8-3693-7703-1.ch012

worldwide. These diseases are difficult to detect with regular clinical data analysis. Predicting chronic diseases earlier could save many lives. Thanks to healthcare IoT, we can monitor, assess, identify, and control many chronic diseases and provide chronic disease prevention methods. New technologies like deep learning are emerging to overcome the internet of things (IoT)'s restrictions on what can be used for the aforementioned purposes. This chapter attempts chronic disease prediction using deep learning. The authors use deep learning, feature augmentation, and convolutional neural networks to predict chronic kidney disease, diabetes, heart disease, and pneumonia. For chronic disease prediction, an integrated model using the algorithms is suggested.

I. INTRODUCTION

Currently, the healthcare industry is in the midst of gathering a substantial amount of data that is highly complicated. This is happening right now. Computerized patient records, medical devices, hospital resources, disease diagnoses, and healthcare resources themselves are all included in this data. Additionally, this data includes the resources themselves. To be successful in the field of data mining, it is absolutely required to have access to a substantial dataset. This is a requirement that cannot be avoided. The application of data mining in the healthcare industry has the potential to realize a considerable amount of potential in a variety of different domains. This potential can be realized in a number of different locations. The prediction and diagnosis of diseases, the evaluation of therapies, the administration of healthcare, and the improvement of the medical device sector are some of the topics that fall under this category (Durairaj & Ranjani, 2013). In the case that the medical personnel makes errors in the decisions that they make regarding the care that they provide for their patients, they put themselves in a position where they could potentially face severe consequences. Among these implications is the possibility that their patients will lose their lives, in addition to suffering significant losses in terms of both time and money. Furthermore, as a result of this, it is of the utmost importance to provide patients with an accurate diagnosis and to aid them in selecting the treatment that is the most suited for them by providing them with guidance. It is possible to identify and anticipate a variety of diseases in populations that are otherwise healthy using the process of data mining, which may be useful in this area. This can be performed by identifying and anticipating diseases. The use of a strategy that is founded on deep learning and the application of both of these methods and strategies are two of the strategies that are presently being utilized in the process of prediction. Both of these strategies are currently being utilized. Khanam and Foo (2021) assert that deep learning has the ability to enhance data mining in the healthcare industry. This

26 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/a-deep-learning-algorithm-for-multiple-disease-prediction-using-the-iot-and-its-implications/368932

Related Content

Algorithm for Decision Procedure in Temporal Logic Treating Uncertainty, Plausibility, Knowledge and Interacting Agents

V. Rybakov (2010). *International Journal of Intelligent Information Technologies* (pp. 31-45).

www.irma-international.org/article/algorithm-decision-procedure-temporal-logic/38990

AI, Sustainability Mandates, and the Intensification of Logistical Work

Anh Ngoc Le (2026). *Impacts of AI on Employment and Skills in Logistics* (pp. 1-26).

www.irma-international.org/chapter/ai-sustainability-mandates-and-the-intensification-of-logistical-work/407346

Fusion of XLNet and BiLSTM-TextCNN for Weibo Sentiment Analysis in Spark Big Data Environment

Aichuan Liand Tian Li (2023). *International Journal of Ambient Computing and Intelligence* (pp. 1-18).

www.irma-international.org/article/fusion-of-xlnet-and-bilstm-textcnn-for-weibo-sentiment-analysis-in-spark-big-data-environment/331744

Business Transaction Privacy and Security Issues in Near Field Communication

Jayapandian N. (2021). *Research Anthology on Artificial Intelligence Applications in Security* (pp. 829-847).

www.irma-international.org/chapter/business-transaction-privacy-and-security-issues-in-near-field-communication/270628

The Educational Contribution of Interactive Whiteboards

James W. Davis (2018). *International Journal of Conceptual Structures and Smart Applications* (pp. 63-76).

www.irma-international.org/article/the-educational-contribution-of-interactive-whiteboards/206907