

# Data Science and Big Data Analytics in Addressing some Healthcare Challenges

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## **Abstract**

Current advancement as well as the rapid growth and massive adoption of computerized applications worldwide have produced the tremendous amount of data collections in all aspects of human life including bio-data, bio-medical data and healthcare. Many effective methods have been developed in order to extract the hidden knowledge in these data in which data science and big data analytics are playing as the major role and becoming the challenging and valuable area to solve these phenomena. Moreover, bioinformatics has been developed as interdisciplinary approach using data science, artificial intelligence, and information technology in addressing important and new techniques in intelligent knowledge discovery of different types of datasets. All of these approaches as well as the environmental impact of the healthcare field has become an important factor globally for the rapid growth and adoption of intelligent healthcare worldwide. Data science and Big Data Analytics are an effective way of tapping into the inherent value of large data into meaningful information and knowledge in healthcare sector. The amount of data being generated in the healthcare industry is growing at a very fast rate, and Big Data analytics could be used in the diagnosis and prediction of disease. Machine Learning/Deep Learning methodologies, techniques, and algorithms are the tools for Data Science, big data, artificial intelligence use to classify data, identifying similarities, predicting trends, and prescriptive purposes especially as an intelligent health systems in empowering healthcare. Finally, a broad perception of these hot topic and examples about current data science and big data analytics approach in healthcare, their applications, and challenges are given.

Keyword: Data science, Big Data Analytics, Artificial Intelligence, Bioinformatics, Intelligent Health Informatics