

CASE STUDY I

TITLE

Big Data Analytics in Healthcare: Data-Driven Methods for Typical Treatment Pattern Mining

AUTHOR

Chonghui guo and Jingfeng Chen : **Year 2019**

PROJECT DESCRIPTION

A huge volume of digitized clinical data is generated and accumulated rapidly since the widespread adoption of Electronic Medical Records (EMRs). This paper discusses the research background - big data analytics in healthcare, the research framework of big data analytics in healthcare, analysis of medical process, and treatment pattern mining. Then the challenges for data-driven typical treatment pattern mining are highlighted, including similarity measure between treatment records, typical treatment pattern extraction, evaluation and recommendation, when considering medical information in EMRs. Furthermore, three categories of typical treatment patterns are mined from doctor order content, duration, and sequence view respectively, which can provide a data-driven guideline to achieve the “5R” goal for rational drug use and clinical pathways.

CASE STUDY II

TITLE

Big Data in Supply Chain Management and Medicinal Domain

AUTHOR

Aniket Nargundkar and Anand J.Kulkarni : **Year 2019**

PROJECT DESCRIPTION

This paper presents the fundamental and conceptual overview of big data describing its characteristics. There are Supply Chain (SC) and Medicinal industries. Under SC domain, data generation process is explained. The difference between big data and traditional analytics is significantly noted. Landscape of SC is described with specific case studies in central areas of application. The typical big data platforms used in supply chain are elaborated with comparison. Prominent platform NoSQL is used comprehensively. Contemporary methodologies of big data analytics in supply chain are stated. The overall process of bigdata analytics from data generation till data results visualization is exemplified. Upcoming trends of big data analytics with wearable or implanted sensors is explicated.

CASE STUDY III

TITLE

Transforming Healthcare with Big Data Analytics and Artificial Intelligence: A Systematic Mapping Study

AUTHOR

Nishita Mehta, Anil pandit and Sharvari Shukla : **Year 2019**

PROJECT DESCRIPTION

The current study performs a systematic literature review (SLR) to synthesise prior research on the applicability of big data analytics (BDA) in healthcare. The SLR examines the outcomes of 41 studies, and presents them in a comprehensive framework. The findings from this study suggest that applications of BDA in healthcare can be observed from five perspectives, namely, health awareness among the general public, interactions among stakeholders in the healthcare ecosystem, hospital management practices, treatment of specific medical conditions, and technology in healthcare service delivery. This SLR recommends actionable future research agendas for scholars and valuable implications for theory and practice.

CASE STUDY IV

TITLE

Big Data Analytics for Healthcare Industry: Impact, Applications, and Tools.

AUTHOR

Sunil Kumar and Maninder Singh : **Year 2019**

PROJECT DESCRIPTION

The health industry sector has been confronted by the need to manage the big data being produced by various sources, which are well known for producing high volumes of heterogeneous data. Various big-data analytics tools and techniques have been developed for handling these massive amounts of data, in the healthcare sector. In this paper, we discuss the impact of big data in healthcare, and various tools available in the Hadoop ecosystem for handling it. We also explore the conceptual architecture of big data analytics for healthcare which involves the data gathering history of different branches, the genome database, electronic health records, text/imagery, and clinical decisions support system.

CASE STUDY V

TITLE

Exploring big data analytics in health care.

AUTHOR

T.Ramesh, V.santhi : **Year 2020**

PROJECT DESCRIPTION

Cost optimization is one of the major issues in health care as it has become very difficult in fetching patient's information across huge data bases. Here, various data mining techniques such as SVM, Decision Trees etc. have been discussed in order to address various healthcare issues. Later on Big Data Analytics tools were addressed on top of data mining techniques in health care sector, as the health care industry is one of the leading sectors where huge revenue will be generated across globe as the numbers of patients are increasing drastically with the population. In future Machine learning with Big Data has lot of scope in healthcare as so many new diseases are coming into lie light across the world.

CASE STUDY VI

TITLE

Data analytics for the sustainable use of resources in hospitals: Predicting the length of stay for patients with chronic diseases

AUTHOR

Harmed M.Zolbanin, Behrooz Davazahelmami, Dursun Delen, Amir Hassan Zadeh : **Year 2022**

PROJECT DESCRIPTION

Employs a data analytics approach to develop and test a deep learning neural network to predict LOS for patients with chronic obstructive pulmonary disease (COPD) and pneumonia. The methodological contributions include to augment the data sets, prediction of LOS as a numerical (rather than a binary) variable, temporal evaluation of the training and validation data sets, and a significant improvement in the accuracy of predicting LOS for COPD and pneumonia inpatients. Using the assessment criteria introduced in prior studies (i.e., ± 2 days and ± 3 days tolerance), our models predict the length of hospital stay with 86 % and 91 % accuracy for the COPD data set, and with 74 % and 85 % accuracy for the pneumonia data set. Hence, effort could help hospitals serve a larger number of patients, thereby reducing their environmental footprint while increasing their revenue, as well as their patients' satisfaction.

CASE STUDY VII

TITLE

The use of Big Data Analytics in healthcare.

AUTHOR

Kornelia Batko and Andrzej Ślęzak : Year 2022

PROJECT DESCRIPTION

The direct research was carried out based on research questionnaire and conducted on a sample of 217 medical facilities in Poland. The research positively confirmed that medical facilities are working on both structural data and unstructured data. The following kinds and sources of data can be distinguished: from databases, transaction data, unstructured content of emails and documents, data from devices and sensors. However, the use of data from social media is lower as in their activity they reach for analytics, not only in the administrative and business but also in the clinical area. It clearly shows that the decisions made in medical facilities are highly data-driven. The results of the study confirm what has been analyzed in the literature that medical facilities are moving towards data-based healthcare, together with its benefits.