Chapter 8
Case Studies in Amalgamation of Deep Learning and Big Data

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ABSTRACT

Deep learning is now more popular research domain in machine learning and pattern recognition in the world. It is widely success in the far-reaching area of applications such as Speech recognition, Computer vision, Natural language processing and Reinforcement learning. With the absolute amount of data accessible nowadays, big data brings chances and transformative possible for several sectors, on the other hand, it also performs on the unpredicted defies to connecting data and information. The size of the data is getting larger, and deep learning is imminent to play a vital role in big data predictive analytics solutions. In this paper, we make available a brief outline of deep learning and focus recent research efforts and the challenges in the fields of science, medical and water resource system.

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INTRODUCTION

Big data and Deep learning are the two hottest topics rising quickly in the real world. While the big data has defined in many ways, it raised to becoming more growth and excellent accessibility of digital data in shapes and size, is increasing at beyond belief rates (Lopez et al., 2016). This detonation of digital data gets big chances and transformative possible for numerous sectors such as enterprises, healthcare industry manufacturing, and educational services (Lopez & Gunasekaran, 2015). Big data suggestions great potential for developing all features of our humanity, gathering of valued information from big data is not such an easy task. The significant and rapid growing of hidden information in the unmatched capacities of non-traditional data needs together with the improvement of innovative technologies and relating to more than one branch of knowledge in close by collaboration (Lopez & Sekaran, 2016).

Currently, machine learning techniques, organized with improvements in available computational control, have come to play a dynamic role in Big Data analytics and knowledge discovery (Lopez et al., 2016). In compare to best conventional learning methods, which are well thought-out using shallow-structured learning architectures, deep learning refers to machine learning techniques that practice supervised and unsupervised approaches to spontaneously learn hierarchical representations in deep architectures for classification (Parimala & Lopez, 2015).

Deep learning successfully implemented in industry domains that perform very well on an enormous amount of ordinal data (Boobalan et al., 2016). Firms similar to Facebook, Apple, and Google gather and explore massive volumes of data each and every day, violently insistent to deep learning associated projects (Manogaran et al., 2016). Apple Siri, is one of the examples for computer-generated personal assistant in iPhones, provides wide-ranging facilities containing sports news, reminders, answers to user's questions and weather reports by making use of deep learning and more data collected by Apple services.

BACKGROUND

2. Overview of Big Data

Big data defined as datasets size is away from the capacity of the usual database, capture by software tools, store, manage, and analyze. Handling the data is not easy, and analysis in the standard database likes SQL. The data is too outsized, moves very quick, or it is not related to the structure of database architectures (Parimala & Lopez, 2016).