Literature survey

COVID-19 outbreak has put the whole world in an unprecedented difficult situation bringing life around the world to a frightening halt and claiming thousands of lives. Due to COVID-19's spread in 212 countries and territories and increasing numbers of infected cases and death tolls mounting to 5,212,172 and 334,915 (as of May 22 2020), it remains a real threat to the public health system. This paper renders a response to combat the virus through Artificial Intelligence (AI). Some Deep Learning (DL) methods have been illustrated to reach this goal, including Generative Adversarial Networks (GANs), Extreme Learning Machine (ELM), and Long /Short Term Memory (LSTM). It delineates an integrated bioinformatics approach in which different aspects of information from a continuum of structured and unstructured data sources are put together to form the user-friendly platforms for physicians and researchers. The main advantage of these AI-based platforms is to accelerate the process of diagnosis and treatment of the COVID-19 disease. The most recent related publications and medical reports were investigated with the purpose of choosing inputs and targets of the network that could facilitate reaching a reliable Artificial Neural Network-based tool for challenges associated with COVID-19. Furthermore, there are some specific inputs for each platform, including various forms of the data, such as clinical data and medical imaging which can improve the performance of the introduced approaches toward the best responses in practical applications. The present section focuses on the introduction of some applicable AI-based strategies that can support existing standard methods of dealing with COVID-19 in health care systems around the world. With the aim of foregrounding the enhanced effectiveness of these strategies and techniques, their formation has been informed by and based on the most recent AI-related published medical updates as well as the latest updates on COVID-19. Therefore, this section presents ideas that can enhance and speed up ANN-based methods obtaining process to improve treatment methods and health management as well as recognition and diagnosis. However, the optimal effectiveness of AI tools during COVID-19 pandemic depends on the extent of human input and collaboration in different roles humans play. The knowledge of capabilities and limitations of AI, however, stays with data scientists who play an important role simply because they are the ones who code AI systems. The first step is the preparation of the data which are necessary for data mining during data understanding, data preparation and big data. The

data under discussion here consist of medical information, such as clinical reports, records, images and other various forms of information that can be transformed into data that can be understood by a machine. Objectives of data understanding include understanding data attributes and identifying main characteristics such as data volume and the total number of variables to summarize the data. Before processing and analysis comes data preparation that is the process through which raw data are refined and converted. In other words, it is a process in which data are reformatted, corrected and combined to enriched data. Collecting, analyzing and leveraging the data such as consumer, patient, physical, and clinical data ends in big data. It is at this stage that human intervention, as a part of machine learning methods, takes place and experts investigate and analyze the data to extract the data with finest structures, patterns and features.