

# Chapter 6

## Artificial Neural Network Models for Large-Scale Data

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### ABSTRACT

*Artificial intelligence (ARTINT) and information have been famous fields for many years. A reason has been that many different areas have been promoted quickly based on the ARTINT and information, and they have created many significant values for many years. These crucial values have certainly been used more and more for many economies of the countries in the world, other sciences, companies, organizations, etc. Many massive corporations, big organizations, etc. have been established rapidly because these economies have been developed in the strongest way. Unsurprisingly, lots of information and large-scale data sets have been created clearly from these corporations, organizations, etc. This has been the major challenges for many commercial applications, studies, etc. to process and store them successfully. To handle this problem, many algorithms have been proposed for processing these big data sets.*

### INTRODUCTION

We have displayed the surveys of the massive data sets (MASSDSs) related to the Artificial Neural Network (ARTNEURNET) in this book chapter.

These above problems and challenges of the ARTNEURNET for the big data sets (BIGDSs) are very crucial as follows:

1. The large-scale data sets (LARSCDSs) have certainly been the massive advantages for the big corporations, the large-scale organizations, the economies of the countries in the world, etc.
2. There have been the massive positives of the MASSDSs for the different fields in the world.

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### **Artificial Neural Network Models for Large-Scale Data**

3. People have spent too much time and cost of storing, handling the BIGDSs, and furthermore, of extracting the significant values from the LARSCDSs
4. People have considered how to reduce time and cost of (3) fully.
5. ...etc.

We have also given an example of a novel model of the ARTNEURNET for the MASSDSs using the ARTNEURNET, and the multi-dimensional vectors (MULTDIMVECTs) of the opinion lexicons of the RUSSELL & RAO coefficient (RUSRAOC) through an international search engine – Google (GOOGSE) with the And and Or operator (ANDOROPs) in a sequential system (SEQSYS) and a parallel network system (PANETSYS).

We have implemented the problem so far by others as follows:

1. There have not been enough the algorithms, methods, models, and etc. of the ARTNEURNET for the MASSDSs yet to be applied to the different areas for the economies, countries, societies, corporations, organizations, and etc.
2. There have not been the algorithms, methods, models, and etc. of the ARTNEURNET for the LARSCDSs, which have been implemented in the SEQSYS and the PANETSYS.
3. The algorithms, methods, models, and etc. of the ARTNEURNET for the BIGDSs have already been developed with the small samples in the SEQSYS and the PANETSYS.
4. ...etc.

We have given a novel model of an example of the ARTNEURNET of the semantic analysis (SEMANAL) for the MASSDSs in the SEQSYS and the PANETSYS.

We have been the main contributions of this book chapter to the problem from the surveys related to a lot of novel models of the ARTNEURNET for the MASSDSs as follows:

1. This book chapter has helped the readers have the information and knowledge about the ARTNEURNET for the BIGDSs certainly.
2. Most of the models of the LARSCDSs of the ARTNEURNET in the different areas have been displayed in both the SEQSYS and the PANETSYS on more details in the below sections.
3. According to the above information and knowledge, the readers (including scientists, researchers, CEO, managers, and etc.) can build, develop, and deploy the commercial applications, studies, and etc. so much.
4. The different techniques of the models have already been presented carefully.
5. We have also shown that a novel model of us for the MASSDS have been proposed successfully.
6. ...etc.

We have already presented the contribution non-trivial as follows: A proposed model of the SEMANAL for the BIGDS has been developed in the SEQUENTS and the PANETSYS – the Cloudera environment with Hadoop Map (M) and Hadoop Reduce (R). This model has used the ARTNEURNET with the MULTDIMVECTs of the opinion lexicons (OPINLEXs) to classify the sentiments (positive, negative, or neutral) for the documents (1,000,000) of the testing data set (TESTDSET) based on the documents (2,000,000) of the training data set (TRAINDSET) in English. We have calculated the semantic values of the terms (verbs, nouns, adjectives, adverbs, and etc.) in English by using the RUSSELL & RAO

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