

Chapter 3

Deep Learning for Opinion Mining

Iman Raeesi Vanani

Allameh Tabataba'i University, Iran

Morteza Amirhosseini

Allameh Tabataba'i University, Iran

ABSTRACT

In this chapter, through introducing the deep learning and relation between deep learning and artificial intelligence, and especially machine learning, the authors discuss machine learning and deep learning techniques, the literature focuses on applied deep learning techniques for extracting opinions. It can be found that opinion mining without using deep learning is not meaningful. In this way, authors mention the history of deep learning and appearance of it and some important and useful deep learning algorithms for opinion mining; learning methods and customized deep learning techniques for opinion mining will also be described to understand how these algorithms and techniques are used as an applicable solution. Future trends of deep learning in opinion mining are introduced through some clues about the applications and future usages of deep learning and opinion mining and how intelligent agents develop automatic deep learning. Finally, authors have summarized different sections of the chapter at conclusion.

DOI: 10.4018/978-1-5225-6117-0.ch003

INTRODUCTION

Nowadays, around 4 billion internet users in the world, generate different contents in weblogs, forums, portals, websites and social networks apps in every second and online, these kinds of data have led to potency of social information for figure outing opinions about politics, services, products, news or events, this outburst, has turned opinion mining into a very valuable intangible asset. many surveys, applicable solutions, algorithms and tools such as Bag Of Words (BOW) model, Part Of Speech (POS) tagging, lexicon-based techniques, Natural Language Processing (NLP), Sentiment Analysis (SA), classification algorithm, machine learning and deep learning algorithms have created to handle and mine knowledge from context as an opinion miner.

However, most opinion mining techniques are, based on machine learning which some earlier information about sentiment should use in the analyzing process. On the other hand, an edge over the traditional machine learning algorithms is deep learning techniques, which are to learn automatically new complex features. These overcome the challenges coped by opinion mining and handle the diversities without the expensive demand or manual extraction.

In this chapter, authors want to describe deep learning and some of the different approaches used in the opinion mining. First of all, after some definitions and study on history of deep learning, authors will define deep learning techniques in particular; this part considers an ensemble of machine learning techniques using Artificial intelligence algorithms, that several sentiment classifiers trained with kinds of features, and an ensemble of features, where the combination has made at the feature level.

After this, authors will discuss using deep learning in opinion mining models, because sentiment analysis models have validated by deep learning techniques, in this section, authors focus on applicable and new techniques and explain the important ones. After that, the authors will describe the developed deep learning in opinion mining and applied techniques by describing a sample framework in detail. The framework is a useful conceptual model for new kind of deep learning techniques in opinion mining. Finally, the trend of deep learning techniques in opinion mining will be discussed as the last part of this chapter.

DEEP LEARNING DEFINITION

Before talking about deep learning, relationship with Machine Learning, Artificial Intelligence, and shallow learning is necessary to know. The easiest way to understand this relationship is looking at the diagram in Figure 1.

24 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/deep-learning-for-opinion-mining/211551

Related Content

Big Data Paradigm for Healthcare Sector

Jyotsna Talreja Wassan (2016). *Big Data: Concepts, Methodologies, Tools, and Applications* (pp. 570-587).

www.irma-international.org/chapter/big-data-paradigm-for-healthcare-sector/150182

A Blind Signature-Based Approach for Cross-Domain Authentication in the Cloud Environment

Aniello Castiglione, Francesco Palmieri, Chin-Ling Chen and Yao-Chung Chang (2016). *International Journal of Data Warehousing and Mining* (pp. 34-48).

www.irma-international.org/article/a-blind-signature-based-approach-for-cross-domain-authentication-in-the-cloud-environment/143714

Integrating Feature and Instance Selection Techniques in Opinion Mining

Zi-Hung You, Ya-Han Hu, Chih-Fong Tsai and Yen-Ming Kuo (2020). *International Journal of Data Warehousing and Mining* (pp. 168-182).

www.irma-international.org/article/integrating-feature-and-instance-selection-techniques-in-opinion-mining/256168

Blending Technology, Human Potential, and Organizational Reality: Managing Big Data Projects in Public Contexts

Jurgen Janssens (2016). *Big Data: Concepts, Methodologies, Tools, and Applications* (pp. 1422-1451).

www.irma-international.org/chapter/blending-technology-human-potential-and-organizational-reality/150224

Multi-Documents Summarization Based on TextRank and its Application in Online Argumentation Platform

Caiquan Xiong, Xuan Li, Yuan Li and Gang Liu (2018). *International Journal of Data Warehousing and Mining* (pp. 69-89).

www.irma-international.org/article/multi-documents-summarization-based-on-textrank-and-its-application-in-online-argumentation-platform/208693