Chapter 86
Research on O2O Platform and Promotion Algorithm of Sports Venues Based on Deep Learning Technique

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ABSTRACT

In the era of big data, intelligent sports venues have a practical significance to provide personalized service for users and build up a platform for stadium management. This article proposes a new parallel big data promotion algorithm based on the latest achievements of big data analysis. The proposed algorithm calculates the optimal value by using the observed variables Y, the hidden variable data Z, the joint distribution P (Y, Z | θ) and distribution conditions P (Z | Y | θ). The experimental results show that the proposed algorithm has higher accuracy of big data analysis, and can serve the intelligent sports venues better.

1. INTRODUCTION

Depth learning is a method of machine learning based on data representation learning. Depth learning combines low-level features to form more abstract high-level, which denotes class, or feature of a property so as to discover a distributed representation of data (Haytham, Fayek & Lawrence, 2017). Observations can be represented in a variety of ways, such as the vector of each pixel's intensity value, or more abstractly, into a series of edges, regions of a particular shape, et al. Depth learning is a new field of machine learning research. Its motivation is to build and simulate neural networks for human brain analysis and learning. It simulates the mechanism of the human brain to interpret data (Marta et

Figure 1. A depth learning model containing multiple hidden layers
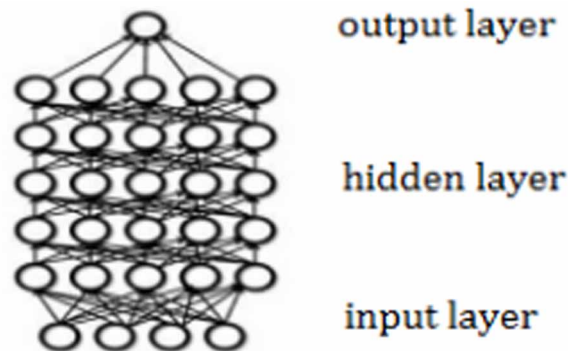
al., 2017). Depth machine learning methods include supervised learning and unsupervised learning (Oscar et al., 2017). The learning models built under different learning frameworks are different. How to use depth learning technology to help the media to improve the quality of the content, click through rate and how to help the new media content operation is the focus of future research.

Deep learning is a new machine learning field in the study of the motivation is to establish and simulate the human brain to analyze neural network learning mechanism, it imitates human brain to interpret the data, such as image, sound and text (Guoqiang, LiNa, Xiao, & Junyu, 2017). The core idea of deep learning are as follows: (1) unsupervised learning for each layer of the pre-train network;(2) unsupervised learning training only with a layer of the time, the training as a result of its high level of input; (3)the supervision method from top to bottom to adjust all layers. A deep learning structure is usually a multilayer perception containing multiple hidden layers (Junliang, Kai, Weiming, Chunfeng, & Haibin, 2017). Figure 1 shows a depth learning model containing multiple hidden layers.

Social media are computer-mediated technologies that facilitate the creation and sharing of information, ideas, career interests and other forms of expression via virtual communities and networks. Social media use web-based technologies, desktop computers and mobile technologies (e.g., smart phones and tablet computers) to create highly interactive platforms through which individuals, communities and organizations can share, co-create, discuss, and modify user-generated content or pre-made content posted online. They introduce substantial and pervasive changes to communication between businesses, organizations, communities and individuals (Junliang, 2017). Social media changes the way individuals and large organizations communicate. These changes are the focus of the emerging field of techno-self studies. Social media differ from paper-based media (e.g., magazines and newspapers) or traditional electronic media such as TV broadcasting in many ways. Social media and mobile technologies offer new tools for accelerating citizen participation and economic and social progress. Social media is a new type of online media that gives users a lot of room to participate. Social media is the most common blogs, forums, social networks, micro-blog, Wikipedia, podcasts, reviews and content of community. Social customer service that many enterprises are no longer strange, more and more enterprises realize the importance of social media for the brand, is also willing to invest in social media.

The sports venue construction has large investment, high maintenance costs and long payback period. Huge investment and consumption often makes the later running into an unquenchable trap (Anna, Gilbert, Mark, & Ludwig, 2014). In addition to daily teaching activities and sports groups, a large number

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