인공지능 딥러링 학습 플랫폼에 관한 선행연구 고찰

진찬용[1] · 신성윤[2] · 남수태[1]

[1]원광대학교(융복합창의연구소) · [2]군산대학교

A Review on Deep Learning Platform for Artificial Intelligence

Chan-Yong Jin[1] · Seong-Yoon Shin[2] · Soo-Tai Nam[1]

[1]Wonkwang University · [2]Kunsan National University

E-mail : jcy85366@wonkwang.ac.kr

요 약

인공지능이 글로벌 경쟁력 원천 기술로 부각되면서 정부도 자율주행차, 드론, 로봇 등 미래 신산업의 기반 기술이 되는 인공지능을 전략적으로 육성하고 있다. 국내 인공지능 연구 및 서비스는 네이버와 카카오를 중심으로 출시되었으나 해외에 비하면 규모나 수준이 미약한 편이다. 최근, 딥러닝 (deep learning)은 최근 음성인식과 영상인식을 비롯한 다양한 패턴인식 분야에서 혁신적인 성능을 기록하면서 많은 연구가 진행되고 있다. 그 뿐만 아니라 딥러닝은 초창기부터 산업계의 큰 관심을 끌어 구글이나 마이크로소프트, 삼성전자 등 글로벌 정보기술 회사에서 상용제품에 딥러닝 기술을 성공적으로 적용하고 있고 계속 연구개발을 진행하고 있어 대중매체에서도 관심을 가지고 주목하고 있다. 이러한 선행연구를 바탕으로 주목 받고 있는 인공지능에 대해 살펴보도록 하겠다.

ABSTRACT

Lately, as artificial intelligence becomes a source of global competitiveness, the government is strategically fostering artificial intelligence that is the base technology of future new industries such as autonomous vehicles, drones, and robots. Domestic artificial intelligence research and services have been launched mainly in Naver and Kakao, but their size and level are weak compared to overseas. Recently, deep learning has been conducted in recent years while recording innovative performance in various pattern recognition fields including speech recognition and image recognition. In addition, deep running has attracted great interest from industry since its inception, and global information technology companies such as Google, Microsoft, and Samsung have successfully applied deep learning technology to commercial products and are continuing research and development. Therefore, we will look at artificial intelligence which is attracting attention based on previous research.

키워드

Artificial intelligence, Deep learning, Unsupervised learning

Ⅰ. INTRODUCTION

First, the intelligence of the manufacturing industry will improve the quality and productivity of the products, and the unit price will decrease. As the manufacturing system becomes more intelligent, it can happen in developed countries. Even if system intelligence does not directly contribute to solving job problems, it is expected that related industries will generate positive ripple effects. However, it may lead to a change in large companies that can make large-scale investment, rather than small and medium-sized enterprises. User friendly systems can significantly reduce the time and cost of acquiring knowledge. Artificial

intelligence technology can be combined to overcome human creativity limit or to create new art activity, thus expanding artistic richness. However, if the artificial intelligence technology is abused by crime, such as when hacking autonomous vehicle system and causing harm to vehicle occupant, it will suffer great damage. In addition, there is a possibility of causing a large loss when erroneous information generated by artificial intelligence such as finance, military, field, etc., where high reliability is required is used.

According to the National Statistical Office, unemployment rate including unemployed people including unemployed in April of 2017 reached 23.6%. The retirement of the elderly is accelerating, and the overall unemployment rate is also high. The problem is that the number of unemployed people will increase in the future. We have experienced many jobs disappearing through the industrial society. The factory was relocated to find cheap labor, and because of automation, the job was gone. Controversy over the type and scope of artificial intelligence that can replace human judgments can be increased. Artificial intelligence can take technical judgment and legal judgment, but when ethical judgment is entrusted, there may be concern about inadequacy of judgment and possibility of judgment that is biased. The collection, analysis and sharing of information by artificial intelligence is expected to increase concerns about privacy and privacy invasion. Especially, if huge information is gathered and shared, and second infringement by hacking occurs, the damage will appear to be bigger.

II. REVIEW AND CONCLUSION

Deep Learning is not a whole new theory. Deep learning is the revival of neural network based machine learning. Since the error rate of speech recognition using deep learning has started to improve by more than 20 (%), it has started spreading to various fields. It has been rapidly adopted in image classification field since it showed the best classification performance in 2012 ImageNet Challenge. Recently, natural language processing and multi modal data learning have been spreading. On the basis of this diffusion of deep learning, large scale learning data called big data and hardware capable of processing it are based on this.

CNN (convolutional neural network) is a neural network that is inspired by the principle of the optic nerve of a living organism and is structured to be suitable for the processing of image data. Since the late 1990s, it has been used in limited applications such as handwriting recognition [1] and face recognition [2]. As deep learning technology became more or less in full swing, In the 2012 ImageNet Challenge [3], Deep CNN outperformed conventional computer vision technology, And it has reached the level of recognizing general objects even in high resolution natural images [4]. Currently, Google, Naver and other leading domestic and foreign IT companies, automatic classification of photos, content-based image search And has been expanding its scope by video classification, image text, and multimodal learning.

One of the keys to achieving good performance with deep learning is how quickly you can learn large amounts of learning data. When learning by using deep learning, various hyper parameters must be set, and there are various variations in structure. In order to obtain an optimal answer for each problem, many experiments require us to determine these hyper-parameters, If it takes a lot of time to learn large data, It is inevitable that the efficiency is low and it is difficult to provide competitive services in the enterprises. Thus, how scalable a deep learning platform can have a competitive edge in deep learning.

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