

A Study of Deep Learning Applications

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ABSTRACT

Deep learning is a collection of machine learning algorithms utilizing multiple layers, with which higher levels of raw data are slowly removed. For example, lower layers can recognize edges in image processing whereas higher layers may define concepts for humans such as numbers or letters or faces. In this paper we have done a literature survey of some other papers to know how useful is Deep Learning and how to define other Artificial Intelligence things using Deep Learning.

KEYWORDS: Deep Learning, Applications, Survey, ANN, CNN, Organism

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I. INTRODUCTION:

In the areas of hearing, speech recognition, natural-language processing, sound perception, the social network scanning, machine translation, bioinformatics, drug design, medicinal image analysis, content inspectorate and board games, fundamental computing systems such as deep neural networks, deep opinion networks and convolutional nerve networks have been used.

The information processing and propagation of coordination nodes in biological systems influenced artificial neural networks (ANNs). ANNs have different biological brain differences. In particular, the neural networks appear to be rigid and symbolic, while most living organisms' biological brain is fluid (plastic) and comparable.

The most up-to-date profound learning paradigm focuses on artificial neural networks, primarily the CNNs, while solution formats or latent variables arranged in a structured manner in meta-generative frameworks such as the deep faith networking nodes and the Boltzmann deep machinery can also be used.

Every stage learns to turn the data into an abstract and composite representation in deep learning. The first pixel layer will interpret pixels and represent edges; the second layer will write and encrypt edge arrangements; the third will encode the eyes and nose; and the fourth layer can know that the object includes a picture face. The first pixels can be pixel matrix. Importantly, a deep learning algorithm may work out what features are best suited for the stage itself.

The term "strong" indicates the number of layers through which the data is processed in "deep learning." Deep learning programs, in fact, have a significant degree of credit distribution (CAP). The CAP is the sequence of input to output transformations. CAPs identify possibly causal input/output relations. The depth of the CAPs is that of a network and is the number of hidden layers plus 1 (as the output layer is also parameterised). For feedback neural networks. The size of the CAP is theoretically infinite for recurrent neural networks, which may propagate a signal through a layer more than once.

II. OBJECTIVES

- Mean Absolute Error.
- Mean Squared Error. ...
- Huber. ...
- Log-Cosh loss. ...
- Cosine Proximity. ...
- Poisson. ...
- Hinge. ...
- Cross Entropy.

III. LITERATURE REVIEW

Some useful literature reviews are done in this paper. These are jotted down below:

1. Hannes Schulz · Sven Behnke proposed that Hierarchical neural networks have a long history for object recognition. Throughout recent years, new methods have been introduced throughout order to slowly acquire a hierarchy of features from unlabeled inputs. Together with developments from parallel machines,

- these deep learning methods made it possible, for the profundity and input scale of problems not feasible before, to be effectively tackled. In this essay, we provide the readers with fundamental concepts of profound thinking, analyze chosen approaches in depth and provide examples of implementation from computer vision and speech recognition.
2. Birgit Pfarrkirchner Christina Gsaxner stated that The segmentation sector is a significant field in the production of diagnostic photographs and the foundation for more detailed studies on computed tomography (CT), MRI, X-ray, ultrasound (US), or nuclear pictures. The image is divided into different connected areas which correspond to certain types of tissue by segmentation. Another common goal is to delineate unhealthy and stable tissues. The tumor and pathological lesion detection and its magnitude to determine clinical plans and effects are a common source in medicine. For the preparation of specific treatment procedures, for instance in radiation, segmentation is included in the clinical routine.
 3. Suvajit Dutta Bonthala C S Manideep stated that Diabetes (DM) is a metabolic disorder that is due to the high content of the body's blood sugar. Diabetic retinopathy (DR) also causes major sight impairment. Diabetes also contributes to eye deterioration over time. Increased blood pressure, fluid decrease, exudates, bleeding and micro aneurysms may cause the symptoms in the retinal region. Images are the essential tool for successful patient treatment in modern medical science. While, interpretation of modern medical terminology is still difficult. The Deep neural networks computer vision will accurately train a robot and the accuracy level is also better than other neural networking models. After evaluating the models with a qualified CCU neural network the suggested models are programmed with three types: NN rear propagation; Deep Neuro Network (DN Network); and Convolutionary Neural Network (CNN) after reviewing models. The Deep Learning models will quantify the characteristics of blood vessels, fluid rises, exudates, blood cell blood cells and micro-aneurysms of different classes. The algorithm measures the weight that brings the patient's eye frequency.
 4. T. Poggio†, K. Kawaguchi †, Q. Liao†, B. Miranda†, L. Rosasco† stated that An significant mystery of deep grids is the apparent lack of overfitting designed to resist the anticipated error of overparametrication, even though zero training errors on randomly labelled data show great potential. The mechanism relevant to nonlinear gradient decreasing network minimisation shall be topologically equivalent to a gradient system with a degenerated (for square loss) or almost degenerated (for logistic or crossentropy loss) Hessian gradient system close the asymptotically robust minimal empiric error minimis. The idea is based on dynamic systems consistency analysis and validated by analytical tests.
 5. Yin Linfei YU Tao said that A Real-Time Generation Delivery and Control System (REG) is developed as a single time scale system to address the integrated question of multi-scale economic delivery and generation control in the power system, i.e. long-term management, short-term time optimisation and real-time control. For the REG system, which incorporates the Unit Command (UC), the Economic Shipments (ED), Automatic Generation control (AGC) and the General Management Dispatch (GCD), an alternative to the traditional generation control structure, a relaxed deep-neural network (DNN) operator suggests a relaxed deep learning application. The maximum control efficiency with low frequency variations, a lower area control loss, smaller total costs and a smaller number of reverse controls is obtained relative to a composite classic 1200 algorithms in two simulations, i.e. IEEE 10-generator 39-generator New England power system and Hainan 8-generator power network (China).
 6. Sameer Khurana¹, Reda Rawi², Khalid Kunji³, Gwo-Yu Chuang², Halima Bensmail³ and Raghvendra Mall³, said that Throughout pharmaceutical research and production efficiency, protein solubility plays a vital role. The degree of its solubility will, and is determined by its sequence, constitute the nature of a given protein's operation. Therefore, it is important to develop new, highly accurate protein solubility predictors based on silicon sequence. In this study, DeepSol is a novel Protein Solubility Predictor focused on Deep Learning. A neural network that leverages k-mer structure and additional sequent and structural functions derived from the protein sequence is the cornerstone of our architecture.
 7. Francis Quintal Lauzon stated that Deep learning allows multiple layers of description to be dynamically modelled of the underlying data distribution. A special program called stacked denoising autoencoders is examined in this research. This kind of view, combined with an SVM, improves MNIST classification errors over the standard deep learning strategy, when a logistic regression layer with denoising autoencoders is applied to the stack. An easy way to comply with the conference paper formatting requirements is to use this document as a template and simply type your text into it.
 8. Yan Zhang, Hongzhi Yin, Zi Huang, Xingzhong Du, Guowu Yang, Defu Lian proposed that In the recommendation system the issue of cold initialization and reliability of recommendations is deemed two important challenges. In this article, we are proposing a profoundly focused hash-based learning structure called Discret Deep eLearning (DDLs) to map users and items to Hamming spaces, in which user expectations for an element are determined efficiently by Hamming distance. DDL also collects information on app experiences and reports on products to solve the issues with data sparsity and cold starts. To be more precise, the Deep Belief Network (DBN) deep learning models are used to incorporate object knowledge in our DDL system for effective element representation. The system places equilibrium and unnecessary limits on binary codes in order to obtain lightweight yet insightful binary codes. Because of the discreet shortcomings in DDL, iteratively address a set of mixed-integer programming problems, we suggest an effective alternative optimisation process.
 9. Deep neural networks (DNNs) typically have millions, possibly billions, of parameters / weights which are very costly both for storage and measurement. This lead to a broad range of work by using regulators that reduce the sophistication of the neural network. The parameter sharing / bonding, in which certain sets of weights have to share a common values, is another popular approach for managing DNN complexities. Some forms of weight

sharing are hard to express some variances, with the change invariance of convolutionary layers being a notable example.

10. Cheng-Yu Hsieh Yi-An Lin Hsuan-Tien Lin stated that The problem of multi-label learning with multiple implementations is a significant machine learning problem. The varied specifications for different requirements include cost responsive algorithms that can easily be tailored to a range of parameters. Nonetheless, despite the complex complexity of the multi Label Training requirements, cost-sensitive algorithms can be hard to design for general parameters. Any particular kind of criteria can be protected at most by existing cost-sensitive algorithms. In this article, for every general criterion, we propose a new cost-sensitive multilabel learning model. a. Our key idea in the model is to approximate iteratively a substitution loss that fits the sophisticated value criteria in the vicinity of some local districts and to use this calculation for an efficient descent path. Instead, the central concept is linked to a deep knowledge that shapes our pattern. Experimental results support our proposed model over different criteria, above conventional cost-sensitive algorithms and emerging profound learning frameworks.
11. Yinghao Cai; Shuo Wang ; Leijie Zhang proposed that In many areas, such as machine vision and natural language processing, across recent years deep learning has achieved great popularity. Tief learning has a high learning ability and can further leverage data sets for feature extraction in contrast with conventional machine learning approaches. Thanks to its practicality, deep learning is increasingly popular among many researchers. We specifically address advanced neural deep learning networks and their implementations in this article. In fact, we speak about shortcomings and incentives for meaningful thinking.

IV. CONCLUSION

Deep Learning has much value in Technological background. In future, many more applications related to Deep Learning is going to come which will change the scenario of whole world as it will make convenient in every fields. Not only this but also many more efficient algorithms are going to be written that will make more easier Deep Learning concepts in applications which will fully paved the way to a modern technological advancement.

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