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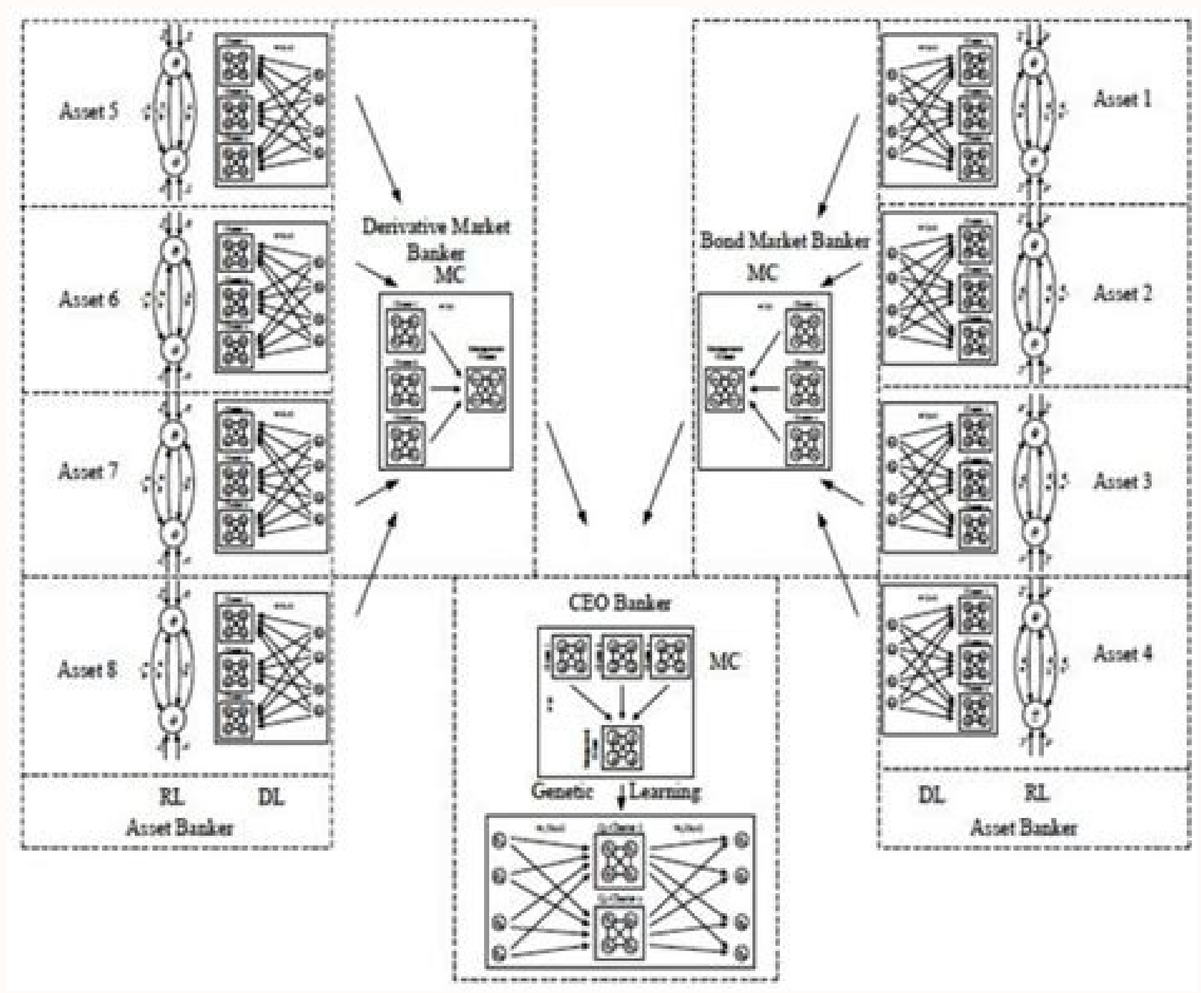

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Load the PDF resume: recently, the performance of recognition systems has been significantly increased due to the introduction of deep architectural images and classification. However, mathematical causes of these successes are always impossible. This leadership will consider recent work in order to ensure a mathematical basis for many network properties, such as global optimization, geometric stability and determining representations. German: Rene Vidal [see Email Post] [V1] 2017 SR, December 13, 12:44:46 UTC (717 KB) Improve the article to save the article How to STUNTION WHAT IS ATTENTION WHAT IS INFORMATION ARE MATHEMATICARY? The concept of deep learning algorithm should be considered in one way or another in the field of mathematics. Mathematics is the main concept on which the learning algorithms are based, and is based on an idea that seems quite obvious, but its development is unexpected, and as soon as it is properly developed, we will be able to have a good idea of the problem we are working on. It is given to solve. In this article, we will discuss in detail the mathematics necessary for learning - in -depth training. Now, if you have the opportunity to learn more, start with these mathematical objects: geometry and vector geometry of linear algebra. Lean and points, given the likeness of dependence on the geometry of hypercoptic transformation. Calculusrules of calculus and the calculation of the income and distribution rule, the rule of the work and the decomposition of the Bayesov modern and continuous distribution of ions, the probability of the acoustic state and the joint distribution of Bunknully distribution. The distribution distribution is updated uniformly evenly distributed distributed distributed distributed distributed distributed distributed distributed distributed distribution Distributed distributed distributed distributed distributed distributed distributed distributed part of the distribution of distribution parts of the distribution parts. The distribution of the Gauss exponential family distribution here. Naive fairy taleDownload PDF resume: recently, the performance of detection systems has increased significantly as a result of the introduction of deep architectures for the training and classification of representations. Nevertheless, mathematical reasons for this success are difficult to understand. In this lesson, the latest work is to ensure a mathematical justification of various properties of deep networks, such as global optimality, geometric stability and transformation of the presented representations. Author :: RENE VIDED [E -E -Email] [V1] Mer, December 13, 2017 12:44:46 UTC (717 KB) Article. Those who are longing to learn more about the concept of the algorithm of the learning algorithm must control mathematics with one or another. Mathematics is the main concept from which in -depth algorithms are created and are used to express an idea that seems completely obvious, but it is unexpected for development, and as soon as it is developed, we can get a good understanding of the problem of Erlangen that we will be decided. In this article, we will discuss in detail the mathematics necessary for learning. If now there is a spark that will learn more about learning more about teaching, start with these mathematical objects: linear geometry and algebenometry from Veckeen and Theorgaussian Dot Bayes Distribution and continuous probability.Model of the probability of recognition for classification. Read more about the Calculusign Convention on Geometric Intertrual Calculation. Integrale. The terms and changes in the variables in the basis of the integral number. Look here. The correlation on this topic looks detailed in the heritical assessment and the comparison of the hypothesis, the interval examination here in order to learn more about it. Maximum probability duration with examples. Intended optimization and negative logarithmic probability or continuous variable size of the maximum hybrid probability. You will find out more about it later. This will help your future with a deep career: -The helps you to select the right algorithm for complexity, training time, function and accuracy. Selection of an algorithic music acceptance plan and selection of the parameters. Any interesting application that requires a deep learning algorithm: “We say, a century, well, with a deep neural network it is now possible to paint this black and white picture, and surprises it with the video.Google Brain researchers have developed this deeply learning neuronal network, which can predict a fairly precise picture of an almost blurry image. You can find Google's article here. Lip Reading, developed by the University of Oxford, is a deep -learning neuronal network that can read data from people's lips and convert directly into text, and you don't even need human language audio. Stanford article about it here. A neuronal deep learning network can now locate a picture where it was clicked and display it on a card. See planet documentation here. Some endangered whale species are recognized using Convolutional Neural Networks, and here deep learning concepts are introduced to save them. See here if you want to know more. Self -driving cars will be developed that can recognize traffic and choose the optimal route. Here you will find Stanford papers. In addition, deep learning algorithms are implemented everywhere, such as: B. earthquake forecast, music production, entertainment, healthcare and of course robotics. More here. Further information on Deep Learning and Neuronal Networks can be found under the link below. Left: Download PDF Abstract: We describe a new area of mathematical analysis in deep learning. This field emerged from a list of research questions that were not answered by the classic learning theoretical framework. These questions refer to: the extraordinary generalization force of over -saved neuronal networks, the role of depth in the depth architecture, the obvious lack of the curse of dimensionality, the surprisingly successful optimization performance despite the non -convex of the problem, the understanding of the characteristics learned. why deep architectures are particularly suitable for the solution of physical problems and how aspects of fine architecture influence the behavior of the learning task. We give an overview of modern methods that provide partial responses to these questions. We describe the main ideas of the selected methods in detail. By: Julius Berner [see e-mail] [V1] 2021 Sun 9 May 9:30:42 PM (2534 KB) [V2] Feb 16:48:49 UTC (2534 KB) Image by Tristân Joseph. Deep Neural Networks (DNNS) are essentially formed by linking several perceptrons, with a perceptron being a single neuron. Imagine an artificial neural network (KNN) as a system that has a number of inputs that are fed thoughtfully.These entries are then

processed and outputs are created to carry out specific actions. Over time, Ann learns and develops in different ways. Different paths can have different weights, and the paths that are greater (or produce more desirable results) are assigned higher weights to the model than those that produce less desirable results. For DNN, if all the inputs are densely connected by all the triggers, these levels are indicated as dense levels. In addition, DNNs can contain several masked levels. The hidden level is essentially the point between the entry and exit of the neurons network where the activation function transforms into the information it feeds. The hidden level is defined because the system is not directly observed by the system. with input and exit. The deeper the network of neurons, the more it can recognize the network from data. Although the objective is to make the most of your data, deep learning models can suffer from an excess offer. This happens when the model learns too much learning data, including random noise. The models are thus able to determine very complex data formulas, but this negatively affects the performance of the new data. The noise collected in learning data does not apply to new or unpublished data, and the model is unable to generalize the models found. Non-linearity is also of great importance in deep learning models. Although the model learns a lot of more hidden levels, the application of linear forms to non -linear problems will cause poor performance. The image of Josephth's question is emerging now: how do these diapers learn? "Use Ann in a real scenario to solve a problem and understand how the model would be formed to achieve its goal. Thanks to the current pandemic, many schools have gone to virtual learning, which means that some students are confronted with the Possibility to take courses. I will present this problem with the fact that any AI system should be able to solve it. We think that this model has only 3 entries: the number of courses followed by a student, time Passed and the number of times the internet connection has been lost during the course. The release of this model will be a binary classification; either the student follows the course, or he does not. It's finished nowA student attended 21 hours of class, spent 90 hours on homework, and lost 7 times his internet connection during that time. These inputs go into the model, and the output estimates that the student's ability to complete the course is 5%. A week later, the last grades were published and the student course was passed. So what is the rating of the model? Technically nothing went wrong. The model will work for now. The problem is that he has no idea what the model is. We started with weights on the street but the model doesn't know what's going on; So the weight is wrong. Science is rendered here. The point is that the model should understand that it is wrong and we do this by calculating some "losses". The calculated loss depends on the specific problem, but is usually minimized to reduce the discrepancy between the calculated output and the actual output. Trist Josephin is just a student and the point of failure described above. to reduce. But usually it isn't. Now imagine there is more than one student to reduce and more than one discrepancy. During this time, total losses are usually calculated as the average difference between all calculations and real observations. The calculated loss depends on the specific problem. So since our current problem is binary classification, the corresponding loss calculation will be mutually tuned. The idea behind this feature is that the student compares whether the rate translates to the actual distribution and tries to reduce the differences between those distributions. classes, but now let's predict what classes they will take. Losing the crossover is no longer a viable method. In contrast, the mean squared error loss would be more appropriate. This method is suitable for a regression problem and tries to reduce the squared difference between ideas, real value and calculated value. Optimization and model training. An important factor in a good DNN is the right weight. loss optimizationThe set of weights w that minimizes the estimated loss. If only one weight component is present, the weight and loss can be traced in a 2D plot and a weight that minimizes loss can be selected. However, most DNNs have multiple weighting components, and it is quite difficult to display an N-dimensional graph. Instead, the derivative of the loss function is computed with respect to all weights to determine the direction of the maximum tone. Now that the model knows which side is up and which is down, it moves down until it reaches the convergence point corresponding to the local minimum. Once this decentralization is complete, a set of optimal weights is returned to be applied to the DNN (assuming the model is well developed). The process of calculating this derivative is known as backtracking and is essentially a chain rule of calculation. Consider the neural network shown above, how does a small change in the first series of weights affect the final loss? This is what the derivative or gradient is trying to explain. However, the first series of weights is inserted into a hidden layer that contains another series of weights that determines the yield and expected loss. Therefore, the effect of weight changes on the hidden layer must be taken into account. They were now the only two parts of the web. However, if more weight needs to be considered, the process will continue by applying the circuit rule from output to input. Photo: Tristân Joozap Another important factor to consider when training DNN is learning speed. As the model travels to find the optimal weight, it needs to update its weights. Although it may seem trivial, determining the coefficient of motion of a model is quite difficult. If the factor is too small, the model may run for a long time or get stuck at a point that is not a global minimum. If the ratio is too large, the model may miss the target point completely and then diverge. While a fixed rate may be ideal, an adaptive learning rate reduces the likelihood of the aforementioned problems. This means that the factor will change depending on the current gradient, the size of the current weights, or anything else that may affect the subsequent positioning of the model to find the optimal weights. Photo: Tristân Joozap As you can see, DNNs are based on calculations and some statistics. Evaluation of the basis of these processes in mathematics isBecause the model can help you understand what has actually happened and help you create better models. Even if it is not easy to capture the concept, most programs contain tools such as automatic differentiation. So dont worry. Successful coding! Links: digitaltrends.com/cool-tech/what-is-an-artatial-naral-neural-neetwork/deepai.org/machine-learning-glossary-ands/hidden-layer-lachine-learning# 2c 20 %20a %20a %20a %20a 20%, 20%IE 20I 20%20NETWortwork.nih.gov/PMC/PMC//Chainle.htmlyoutube.com/watch?v=tgvnbahtttpsps://wwww.inertia7.com/trristnyoutube.com/watch?n=kyoutube? Material: deeplearning.mit.edu/math.ucdavis.edu/~uba/calconectory/chainerectory v = tgvnbahpapahttps: //www.inertia7.com/tristnyoutebube/totsdasciience.com/what-teep-yep-df5d