### CG\_week5\_TutorialTensorflow-20240930

说话人1 00:00  
I think there is focus on the pencil load and the three of the attached. Some of you may selects the object action and the cost project, right? You can have done it. A lot of works on syria and action. If I produce is a yeah, the last year of my phd student. So if I previously from the shanghai government and as the last year, so you can have published an article papers in the top tier journal. That's right. It is become the if you have this refuse on the action and so we can ask question the

说话人2 00:52  
past

说话人1 00:54  
time for you just feel free. Ask questions of your cost product if some of you is. Does the research how to get a fashion? You can also discuss it.

说话人2 01:46  
I hope you can give, I will see you computers department. Do you like to have a chance to be with you? That's what I mean introduce. We draw some control.

And ok for class is nothing about the 3 point cloud education and of the attention that you mean.

First, whether we finally giving our security framework with the motion of returning freedom of that movement, we can improve them. Our returning, you have convenience, the free more we keep learning from all that kind of reports that all automatically calculate the technical regions. So we do not need to define the context of bad people, bad probability, and process are very fast. And the model remote have happy. Have been received about community on the level. You can find the many examples and the documents about the framework. So what will be from about 11

说话人1 03:24  
purpose don't

说话人2 03:25  
go. So we're also developed by facebook or metal. If you is you look at any wrong is for computation, efficiency is possible enough for reading and event by the influence compared to the cost of the global developed by that google and believe you, are you leaving the Equals 30 drop? Is it is more. You have possible community increasingly.

We can see the model

说话人1 04:16  
properly.

说话人2 04:17  
But if compare really how to do it, spirit of this is part of this. It's hard to develop. Today we focused on focus on one for

说话人1 04:36  
three more.

说话人2 04:40  
And we will, obviously, we do can you introduce three main components of the floor? The potential ground and the session? The tensor five of the five. But when the tensor unbearable and will often be a model, including the input and output of network, the base of the model and another, it can be immediate with 1 million variables.

On the graph, you look to represent the building powerful, the laws you can cross have all operations.

For example, the I do we for tracking properties? I already see take one of one or more pencils and input on january. Generally, we are all more pencils and all who will come to fashion. The fashion provides an environment for the operations. We think in session, we feel the ground with some paper, and the figure tensor will flow in the ground.

And how to the law results we want. That's we will use to specific example into properly into a company revenues. You will to be concluded with your level on seven in the 3 point out and he is your point out. Before this, we make some practice ritual, prepare for the environment possible. We need. For 3 . 24, we recommend you create a water environment. With an order. We saw it

说话人1 07:13  
three more.

说话人2 07:23  
For example, of behavior recognition of to decide on this side, when you go in your 20:28, 20:08, black and white image. And without putting the category for emails, portfolio may contain companies.

From these days, we are going to like or to develop people convolutional durable for mft already to the six dots on no design building, reliable, a different law function and doing strategies. I'm treating your camera community on value the more performance and sale model. You will control to micro building on site ok so possible. Of course, we should include the library, battery memory of the passage. We don't know the flow ok you can see the so I asked you things. Are you looking to some people computer will? The temple has prepared is that for going the following these inside, that's we should be fine. If I have a facebook or put down the rocks of stable, so valuable free will face the placeholder, because each pencil, each pencil a is an operation in graph.

If we take a if we take even into the office, these guys have a number of other control as an operation. So completely host of you already is very nice as the ground. The ground is to. If we do the temple, we do the placeholder function to process in google. But are we invest? Although the current input will replace, when you put out last, the past made that mean as so in this way, we will be more introduced. Additional operation, unless the way we build a new landlord, we do something with the internet provided by the little family to the floor.

So so this is a simple example. Are you think of could you come to your level equals? It includes several composer layers on my phone for plagiar layers, come to talk about function. That's the a way. So that's the way we made. It may go to the new level we defend for. It will come. The number will not to the probability of this class to the a a with a pretty killer probability. Really. We can, we have computer. We come in the law of passing more growth into the form of function. We have a it was slowly before we only define it to define the new network and your operation, by the way.

But we have not fairly execute the termination before we define kind of session to prepare the environment of.

That's the way we also define the whole temperature for training. For example, we are doing it for the free stuff, the best size. And of minor reason, I think, are that's the way we are receiving of brand we can between prevention into available tv the local for will run the back of creation to drop the premium or maintenance. For the way, for the way you have to read from, for you have to obtain the banks include on the label and figure, improve, unable to the operations. We have friends. The matter we can obtain the loss of the metrics and methods. On the trees. We continue, we have a blue tree. We can save the model is and ready to the model on the only testing inside. Here are you would like to be to activity to evaluate the performance of all of the size. We can use local flow in mind to the three process.

For example, we can create your summary mind with your cost potential in reference to the loss, the law, and we can create another summary to my new efforts in terms of and so we can realize we are the only results by

we will resolve command commands and look at that ego on the way to tell me.

Look, you coming from the law directly you can. Was that something some reference to see through a law or african? You can say you always mind of your between of figure. You can believe the acronym. Here you go. I have a figure on when they decide ok that's the way we will turn to the 3 . 1 classification. . the . out is, you said, among other points. So it's an order of an irregular paper, but it cannot be committed. Actually, the really existing to the conversion of neural network. So what's the difference from the point of the 20 minutes, we can say? And the party a can be re given us and the principle three dimensional pencil beside you hate, because it means west of women and three, those three dimensions and I the rcb granite of the image.

So it's record. You have a very structure about 4 . 141411. We a a it's not a model i'm going to write on the way you can go to the side for pointing out these on time those three dimensions in the three coordinates, in a three space. So usually, in this way, we can we can represent the point on service of 1 object 0 k that's the way we introduce your point left.

On the one hand example to if you're a panel for regular point beta, you can use the but it can be used in virus or on three passport, on like three classification. That's really how sensations ago on semantic second vision or there are two challenge to process for 3 . 5 for both channels. The neural network should be invariant to the before commutations, because the point now is your set of unloading points. Points the bigger. The leader in the form now can be stored in different orders. But the model is to be invariant to the world from computational all the more. So or to achieve composition, variance between you is metric function, the output of metric function. If you say, when the relation change, change, and for example, the map point has a handle. The found operation issue are symmetric functions of the when it's environment to different computational good points, the results of the function remote chains, no matter how the or all the points are sold oki ask you

说话人1 21:31  
here,

说话人2 21:48  
what time we do in our course?

So math points to make the final results invariant to the . 2 points from vision. Or besides the one color rotation should not have your your classification results for us to say the model needs to be invariant to the transformation. So how to how to address this issue? The method is the paper is to introduce the interview for team line number two during the rotation of the ..

Now I I can read of the object into informing final. You find both of interface, specifically, like looking at your transformation with the parameters of kingdom. Okay.

说话人1 23:19  
Right.

说话人2 23:22  
And you might buy for these metrics to the original originally cooler, 14, the transforming event. So we see very to the key of this panel. When no matter all the formation is on the input, let's look at your responsibility on cash of one time. You put your set of 1,000 data representative at one time and three to be concerned members on the preference, the matter of the hong kong, those 33 33 for them to act while the coordinates in the free space.

Then your equal dinner is first aligned by multiply and multiplying. It will be the transformation matrix we are present next with each of the environment of model, specific phase of information. After he tried explaining the feature of which 1 kilometers, so iphone and to 4 kinds of layers, if that the one time you of nine, 1909, another tonight to line for here for my female, the figure of space that's you performs on that cooperation, on the steps the pictures working to final global future. We are made a little figure in you look. It will bring into the final plan making for through multiple for thank you later and for 7, 18 possible for more than more.

So you are in different the So there are global features compared to the official of these points, the policy of finance. When we know about our possible to do several for plant earlier to preview your is preview release, classic classification results of each .. Now, that's really so the story meaning of the one past. First of we should include life for elaborate. That's the goals of the long time. Love it.

The next, we know we informed the do not equal to the library. If I in another field, the professor, the professor, if you feel the it will find some opportunity to go to design for people, processing people, people on occasion. And you will even ourselves, we do thank you. Do you define the left depends on basic layers. For online, here we use library in the they are passed. We read this library. We can describe some type of parameters. And when we run the program, when we run the program, you can see we can read. We got three. We got to find, we can change the value of our characters in your man, in the fasting of the gap, when you read on the gap in decades, we find some potential for training are all gone, also face the base.

Basically, they are not afraid of the goals down train, but you are not more and will decorate as well. We can also. But then will be prepared to what they will deal with. We can tee up that all device focus on

说话人1 29:12  
here.

说话人2 29:15  
Some components we have produce the in produced before to defend or to fade to people to make. More in your level of the to carry for function actually will evaluate methods and see the model on that.

So we can create a session to presenting for to define an environment to ask you to organization, group model for realization, to realize the racial model and trivial. I think that you around the world. Could you give me only in this slide, we can we can see how to define the network in six, the six parts. And the 4th is the 4th in the 9th, seven, exactly several for planting layers. You are free. The third party to a 92 or 9 go to line to abandon office or in the fear of it. The whole party also do, you know, some on several 44 kinds of years who who is trying to express on. However, people in the 5th part, we ask for it to obtain on the global nature that you are into competition and conformation.

And when you will fix it probably reduce several forecast earlier talking will the federal pretty good probability on this? It's not. You can find the loss of hong kong between process is you figure to go to train to be around, walk here. We provide some good mornings for our learning. Or it's more floating that the computer sounds of the veil is it will it is a job is important to practice the task tasks to learn the knowledge in the book.

说话人1 32:53  
Okay.

说话人2 32:55  
Here, you can do. You can practice, you don't practice the code with some examples. Ok this this cooler in europe are you see when I the follow from / 70, the in the cooler is developed by the world.

Here you can use for a to be able to train your own only learning models, although we can. But maybe you should do some software software. So you can access accessible google on the web, set up your and usual. Or we saw whenever in 3 months, this number we can when you leave to, we don't have a function of mass.

说话人1 34:57  
Here is

说话人2 34:59  
here we build it the model term, except walking on all that body. I'll take off this time. In the field of 3 point of that case, we can do as read and realize. So fail to the match, fail on model terms besides. Here you are here, you can see. So you club, when you do club, do you know, for each of you to compound experiment experiments? And we can also come over to man, fail to point out. So we have your life if we remind me with man for me, is a two e realization.

Now here are some dead pool for 31 kind of application. We know the bigger if I have every the code for the involved in beijing and computer or you upon my and what here you go see you from all of the class. This is your realization of the form of attention. Or at one time you probably we just feel free will be free will be some tomorrow I will treat of my stories of family. We can use the map onto your mask. So we are not for 1 hour and a a pretty label.

说话人1 37:41  
So

说话人2 37:42  
how do you see with a a bottle of 120,000 apples? You're not going to is smart enough to bring you the label of some objects. When you come back to to slide or you can. So you can search more for food on the website on that book to the whole from this, how to defend and war, how to treat your security models or next, I will give something for you to run into three objective patterns.

But the past also is in more times a compared with the application of television. In assignment, we just have only operated to go into response. If you have one triple on this time, you can read more hero for about this time possible. And go if you have any questions. So you can send some email to me. First of those, most of 33 of that intensity, usually in terms of the concept of 2009 to 3 clinical space, i'm pretty to the case inside orientation and go, go and go and go semantically more of just in the free space.

On here, this beginning figure ago. So we go to point down and put up a little bit more glowing or all three of them. And you might more equals, for example, the reader related to the laser poems and one three hundred people might be emails. Three of the tiny then for the tiny that can be badly, properly, many journalistic things for free construction. You can be, you can hear providing in law, you saying for, you say, 90 what vehicles and illegal robots.

On here, we give here reproduce basic or basically a basic model, rather. But I think if we're open on twenty, 2017, this is the possible apply the one hand to work. So the overall of that can be or divided in 3 months In the 4th part. If they do this part, you can follow. We perform the your feature is friend, feature is friend, and also possibly develop the space into also. And you will be happy and more. You can also trying to local one class, each of them of three dimensional picture model.

So on the border and for to kill the reality network, we will introduce in natural style. And we will and send the in the second part of this model. In this part, radio free come commercial network to follow into the your expression opinion of people and comprise the final how to go in the world photographs of things or two different amount finally passed through so far. We send the law compressor to infinity map to to argue in the network to generate for 33 books.

Ok we have, so we will introduce for free the three part in detail, possible.

说话人1 43:35  
So

说话人2 43:36  
what's the we have in that world? For first, we read by the three. We divide all 33 space into several also. For example, we developed participate into local side, both sides of there are little down meters. And in this and each also on each book, so you may contain several points of area. If you doesn't have any points, we have to few years old for those who were official, although when you will also have several months, please also quantize equally is your coordinates is as a private workers. The video for forecast layer to express to explain the 1 to 1 official.

Then when you man calling for to be talking the global, to talking the global official to talk about who represented with also, okay, then go. And the we conquer, we just conquer the global official to the fundamental paper to obtain. The online contest remain official. Ok this is the detail of vip example.

Any questions? During we have during the vfe

we are seeing that work. We can come work for, come work. The 32 comfortable of the free policy equal equals to the also graphs, also as features, figure out how to buy more reacting the other side of 100 times. It comes from times 400 times or 300 about 52, or will is done. That is 17 of the future. Probably the your channel for potential official and for that, and you work for original.

And that's of a free sensor. We for we follow 33 space. There are some points, but well, before these points are irregular and honorable, you also to divide the free space. Okay? The wall, the walls that can be small or has come from a small photo. The whole space can be represented with the wall so wide, also feature. What's well feature of these sides? And the way we have you three, it's a really convolutional matter to come work for three, the just, for, for example, three, for example, the works where features for and all team, all his friendly features. This is for the second step on the walls of both of them, both of that.

Here you go back the west and the case. And then we hope to convert those three d features to two d features. Are we? We just, are you even though the dimension of the case before it? So it turns out or channels times pay to come to, then come to west.

Then we can provide to a tensor with size of release size. We just come back, come back with the machines. We have a map of two d picture map. So we recover some more of those three turn came out to the top. And we got the circle between that to argue that wall, although in the archetypal is it? You really come home convolutional layers to walk in? The math skill features? The possibility of that concept of the map. And so all I have a different map to conquer on concrete base, the feature of kind of different skill. So the figure is from in more strong compared with a single skill, which are the based on the cooking map, we use two pads. You also have three. But what have we reading the floor? We're reading a fossil. You have. So who has pretty good probability score map on the grass town is continuing in the obedience score map in it will predict pretty evil. It is no cases where there is no object and object of. And the object middle is semantic level.

And in the regression, Where is the map? Pretty good. Where is its location and the size of the? The bubbles is? For example, the . was it the center of the model on the side of on the orientation, on vision of uncle. There is AA concept being the animals in this location. It'll be a preset or angles, for example, it was reset or angle from of 4 meters, 2 meters, and legal regression map. In a remarkable you will preview of that a lot of the the previous one goals compared with the wrong groups or compare compared with the length of the preset.

For example, it should be a bit of family girl can freezer. You can real pretty for all facts

说话人1 53:34  
to do. And

说话人2 53:37  
what I do for any kind of that warranty warranty.

说话人1 53:44  
Ok

说话人2 53:49  
follow for long function to do. For long for function group, for classification, customer, your memory, profit could be lost. And for the regression of you inform the all your practice to be detect detection

说话人1 54:16  
to

说话人2 54:17  
include revenue to your property sample. All pretty cool. For animals ok this part of the article, if you have this, you can in the Europe, ok though. So if you talk about the purpose law, practice on more Free time, what you have done, you can see here without me. So you thank for your message.