### CG\_week6\_tu5-20241014

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They are changed the communication and services. And how do you shower? You can get the surface from the answer. This is a function, scientist function, the risk of proposed analogy. How do the activism is a very long segment? So she has also the another one concern. It's about how to measure the discrepancy between two geometry data so that the given 2 . 5, how to marry this, a it's a physical function. It's also a fundamental problem. So it's a why are you useful? This is like senior you can use which for the I think that's previously the three dash, the . power. This is the application. So risk is the limit, is the answer to to include in basically application.

So you create it as far as this soon. If you want to conduct for your cost project, if you want to synapse this topic, I also discussed you see, just if you don't understand, really, you have this

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on the back. And we will hear of the geometry, repetition, geometry, representation has a two category.

The first is the explicit, and the second one is the do this is a representation and the final the, finally, I will introduce how to extract the match from the, is it the presentation? It is the information, the implicit presentation and explicit presentation.

The first, I will introduce the explicit presentation. First. The first is basic recommendation is 1 o'clock. And for the blog is my most when I use the implicit decision and the rest investment year, yeah. Many research work about the protocol. The point of the internet definition is like the point clock is a collection of parts in three space. Then we present the service receiver, each part contain for content, the position on the very table attribute information such as a normal color.

Then we use the one cloud. We need in our code. The one cloud is storyline started as the matrix. This is the metric about the o'clock. Each row, it's xyz it is the part of the position. Rmb is the color. At the end is the normal winter, and there are so many other relative attributes. The part club has the following property. The first line is a point along is the end structure. At the show is a figure. The . o'clock is the represent the position of the art in the city space. And it does not make the image that represent the main difference. Also, the problem is should be written as the matrix, but the matrix is different from the image.

The second property is the cloud is sampled from the two d manifold. Today, in the figure, you could find that the one clock is a slice of service, not needs a whole space. The family property is the one cloud is there is no quality between different parts. As so in this secret, so hot cloud it contains individual funds. There are not there is no connection between the parts. The next, I will introduce the harmful process and conclude in practice. The first one is the organization. So also, addition is to turn out the partner to open the model as and then we could regard the 1 o'clock as the three image, and we could use some form event processing methods to process the globe.

The second is the mlt and pass for a layer. So for the the paragraph is showing this figure in this method individually processed in part. And then the each figure in a poor, they were to get the global feature of this patch. The third percentage matter is to construct is to construct the graph from the front row, and so on. This figure, we to the we could do the graph from the control. And then we could use the how we could use the graph processing methods to deal with the . cloud. The next I will introduce some classical paper about a cloud. The first one is the last night. The point night is a very important work. It is the first quantities, postpontaneity framework for a lot of future, expecting, consuming, taken the input is the wrong.

How did you usual as shared on the new york perception? How to provide future banking and in the table computation environments by the symmetric matrix for the operation to generate the little picture. And part of the parliament has a chinese shortcoming. The finance they don't consider anymore for the information. It's a deal with the part individually, and then you do the mlp and then you can excellent for to the global future. This will imitate its at least accuracy. Some of in some has been. It's a for the following, so fun. And the last is the improved about the net. The motivation is that the previous partner at the ignores the data, considered a local information. And the content plan for us is more conflicts method. It use a media partner to extract the local feature and utilize the dance scale into the bottom of us to the fps and use the bulk area to separate k parts of these central parts.

It a graph is a feature, is in a key pattern and consider the american distance between parts at the figure. Here is the performance of 1 kind of class for us. In this figure, in this table, we put the fact that the classic and accuracy is the improve the law compared to the previous company.

Next I will introduce bbc bbc a a it's a very widely used is use on the . a lot of process method. The commission that's the previous method of defense that is across back in. I the graph by future risk methods, graph of the cloud is fixed in each river and bbc dynamically. You construct the local graph in the future space. Ppc proposed power average coal pollution operation from dynamic of the future expression.

From and so in this figure, this is the overall headline of the ears in. The top is the classification for the classification task. And in the bottom, it was the segmentation task. Here is the performance of the degrees in. This figure show the distance in the official space. Here is the classification and segmentation from the results expo in this table. The t as following this figure decreasing, it's a classical accuracy of decrease in. It's much better than previous method. It's a few, 20, 93 %. Do you have any questions about the fund global process?

If you don't have any question, I will introduce the next next kind of its explicit representation. In the next explicitly presentation is the kind of way compared with the problem triangle mesh is a more complex, explicit representation. The generation is that the kind of way is a type of global measure. And it comes from the set of channels that are connected by the shadow edge or vertex. In the figure, it's a surface is represented or using multi travel. The nearby triangle has a shared edge. Each vertex is shared by bounty sample. The data structure is complex in more companies and the chemical and the particle. It has two matrix. The first matrix is a vertex position. It's a it can report the position of each vertex. And the second matrix is the triangle face index is in each row effects. It is a prevent the effects of each each vertex.

For example, this role, f one, f f these, the first number, we will introduce the f we will introduce the work, the first vertex of this for the first number. Will you find it from this product, from the organisational actions?

And in the second? But in the second number, we will find the second number text, the last one you'll find the last. And then these 3 point to follow a chemical. This is the data structure. The so travel I have the following property. The most content is that the trying to make has the following traditional variance and the triangles. This is different from the hong kong.

And the second is that is the part of the time I is a discrete representation of to be made for. The family is the small number of animals can represent a lack of simple service. If such as there is a chemical, there is a there is this shape. You could use only 2 vortex to 2 triangle. We could use to represent this shape. We also could use the more. We could use more panel to you to represent nc but this is not necessary. This is a how the process method for trying to measure has the following, is the following. The first man in the organization, this is similar to the ground. According to the occasion at each grade, the time of end, always can be converted to also data. And we regard is like is as a three d image and the image method could be applied. End up directly.

The second vacation is the matrix qualifications and we reduce the publicity of china map and creating return the lower option. The parents of the city from left to right, the triangle is the number of the triangle is decreasing, but the overall shape is the action.

The final the third application is the surface reconstruction. The survey with the reconstruction is to reconstruct the triangle. If we construct the problem into the triangle bank. I will introduce some methods about this. I'm going to do some paper of the processing transformation. First of all, is the magazine and the motivation is that the political matrix level is nine units on page to present a large flat regions and where china it is the future, for example, in this region, there are many small triangle, but at this a flat region, there are several larger triangle.

This is the 9014. The uniformed it makes the control network with the motion, a couple of new animals and the very operation, the typically difficult. The medicines comprise the specific color and formula to the match. The commotion is a magazine is applied on the edge and the freud of their indicative. Indeed, the triangle. And the problem is whether they are at the place. If the agriculture is a 50 victor for every edge, the direction angle to enable and to address the ratio of from space. And this is the final and this is the family later on this life. And the microphone is so in the this is the favor. In decision after the poor, the ifc is appeared and the talk menu, the totally menu item represent average of a and aa and b and and under the foc and d here is the promise of measures in in the classification task.

Let's see. We do aa lot compare with the previous semester. The next implicit representation is a geometry as the compared with the previous message from the english is a different a little of stranger. The determination is a strong trading nature, is the reorganization of the three data separate of hong kong or china convention. But the problem and the problem of the products, however, into two demand. In this leader, there is no three people lower. We could reorganize the three d point out and put them in a real method and kinds of image recommend. This this is the country image of its top crowd. This structure is the same as the image where but the is a value if you so represent the and the . of the condition. And the job manager had the following property.

The first one is the geometry image to destruction data, and the method for to be come to it, to be directly applied on the from creating this is the most Most likely is the most important advantage of man, the previous to use the man, produce the transformation and the common law. The second property is the local neighborhood echo in this figure, the local figure of food remain unchanged in in the military region. I saw some metal in this, for example, in this figure, the two parts. The closer is the three part loss, but their correction is the and in the junction image, and they are also close to each other. This is the second property. Here is aa method of the country. It is the same name. The permission is the same as a property image. And is that the aspect of the nature of one of continue to process and can operation of the one block is the type of consumption and the memory consumption. The better effect is this is a proximate, a local race moves three to rd so you need to defend the process to comment the hot dogs of driving unity and freely preserving the neighborhood consistency.

The proposal three compounds, three, proposal three representation to the combined with the various of play of meditation, such as on the global classification of segmentation. And there is the performance in the figure, the performance, the classification and the second take the performance is improved from a compare with the career for myself. And do you have any questions about the introduce the you can see the presentation.

The next I will introduce the this is a representation and compare with this presentation. It basically presentation is a little difficult to understand. The definition is that the inflationary presentation, you use amazing the as a surface of a scalar field to represent the surface of the city. Here, f is a function about of scalar field. Input is a three part, and all of them is the its a scalar that the surface size could be defined as this company. In this formula. The tau is the value of the actual surface. This figure shows a different representation of the geometry. Does the geometry data? First three is the explicit representation. The last one is the basic presentation. It's eager. We could see the initiative related recommendation because as the actual service of scanner field to represent.

So the first the first kind of in place and representation is a battery occupancy field. The battery element is filled in divided the whole space into two parts inside and outside the ship. I'm sorry, this is the figure inside and the outside of the figure. If the part is outside the ship, the uf uf is returns one, otherwise, it times zero in this condition. Actual service with a value is a value of 0 . 5 represent the service. And a few apple can only present a lot of actually because it directs space into the inside and outside in two parts. And the us who represents the probability of her, the perform the location, suddenly is a nice language.

And so it isn't true and representing the service. Here is some classical method for the us the first one is a variable personal services, reconstruction. It is a very classical method. The input is a cloud, and it's already a long waiter and the output in the uf of the shape. Bof we notice that the bof only change from 0 to 1 on the surface for the video and the bof and I checked the inside and outside of the ship. Because also inside the ship, the bof is a constant energy. I think so it, as you can understand, and the psr is the also important about uf according to this normal waiters in this figure, on the surface, the gradient of uf is equal to the to the normal vector.

Then the bill I hope to be carried by swimming, the swimming caution.

And the the next worker is the ship by the .. This is the improved surface reconstruction method. The previous also surface reconstruction is not differentiable, and so they make you, it's really a application, especially in recent years where people learning.

And it's one of all popular. And sap introduce differential forms to measure layers. The sap what's the inclusion? So the spectral method, faster formula transformation, and it works faster formula transformation. And this this is a solution improve the efficiency of the process of instruction. There is 2 kinds of method.

The first one is, the optimization is, the optimization is the icd the first one, this is the input of the function. Come from the oriented normal. We sold the pasr to get a apuf and the magic tool is used to confirm the as a surface live into the range of conditions in the and congratulate the service and the input on the floor. It could optimize the pos the second one is the learning based on the setting. The input is one job and we train the network to present the into a lot of winter. We put the souls are also program. It's a magical or a match.

And here is a lots of one function. We first, this is represented us we then calculate a lot of function. We first, the sample part,

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central points from the server service and ps rs were it's used to get the wrong choice. The us then it's the measure of the difference. The brussels and predicting the us it could often as a network here, is a learning list. Second, here is its performance. There is a here is as the real results. The possible the sap is much better than previous method, previous measure. This wrong structure is

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this condition. And here is a variable results, ncp is this is right.

Now. Here is the essence. Then this figure, we notice that the time for sap is it's longer than previous method. This is because the sap you, the learning, it very increase density as a new member for processing. This is the temple solution. And the next door is at night. That is an important, backward. And my neighbor follow is backwards. And to make the handle different input such as the mobilization. The model of it is expected to learn about three united school answer for future.

We shall end in the space and everything. And the given powerpoint in the future as its scale are heavy and special interpretation. Here, there are parts we need to notice. The first one, the mountains feel cancer. The input is first also like this is the most also asked. We use a three d on the network to get a multi scalar future. The second is the current one given input power. And we put the elevator is we could permeate the teacher from this. And what is good cancer in a special interpretation? And then so no. The interpreted the future at nature, skills on content, and then into the holders to make usa variance is the whether performers you deal into one problem and also that data. It's even the sparse o'clock.

The next represent ok representation and sdfsdf is send into the field. Sdf is a kind of distance trip, and it is more precious line of us experiment for services. Due to the single ufsdf you have a whole space for two parts. He said, all sense, i'm giving a point of x it's sent to a different as a holy difference. If x is center in this motion, dadx represents the x closing of business to control services. The step is determined by the position x if I say it, instead of it, it's a positive. Otherwise, it is a it's and then we guess the property has extend the foreign proteins as the actual company represents the automation, because it's like a you have desire is a home space into two parts.

And so next is the differentiable of variable properties. Sdf spf is a great special gradient of uspf is is equal to the normal vector of the service. And the last of the question of reading that is equal to to one. Here is some work on that. The first one is sdf deep. Sdm is a very popular method. For sdm deep, sdm is a learner in your sdm relationship of our classroom trip, and even proposed and also because there are potential for shipment and addition. The parents are also important, not the revenues are also important.

Later, here is the backbone of defense. The input is not very bad. The input is a very common position. A this is cold as a condition. It is the condition of to represent the shape. This is all our confidence fed into an mrp and the output of the mrp is this one you like there. This is the automotive code and automotive code in the auto encoder. And also encoder has an encoder and decoder, but auto decoder don't have one code. It directly on the directly organize the code in the training room stage and randomly into the late winter in the assignment will be shipped as the beginning of the training.

And they can make it up. Man of america on the decoder rates. Here relates to the performance. This is the middle of the video. We see the video results. The next is the neural pool. Neural pool is miracle is aa good work and there are many important methods based on this. The neural pool will be yourself supervise the learning method in a very nice from the three goals in my love and the works right? And spf on the first by updating the reading the standard business and the reading of putting from these three key space come to the service. The neural core is to talk about on the service, according to the spf reading and spf read it, and then is the state as it would be of the same time. How is the promise?

And next, I will introduce you df udf compare the sdf and usudf is a more general representation. Udf is the distance lowest distance from the very fun to the service. In this condition, the answer is present expose close distance to the service. The udf is the absolute variable. It is always and because you can do the event around into the center and outside. So looking for can represent the market or ships. Sunshine goes with longer and all the years. And the utf has the following history to property. It's really about this is very similar to sdi and here is the work on the india. Yeah, who a has a similar in similar for europe or it india can predict the ubs from france for the world.

In the anyone it is, the practice amazing available. You could have a three dcn to experiment the future from the most island input. The reading, when you get is differentiable. Based on this, any policy is will be space, could be producing on the surface. This is the inclusion. This is very similar to miracle. Paris is performance. The input is special and em the are example, upon to get this, get a message on the cross. And here is the confirmation. So you can represent them. How can they are such as seeing is car. And the next door introduce the density, destiny that is very popular this year. It is any well known nerve and surgical space is very popular. It's a very popular presentation in recent years, but not all of the three dc and the radiance field and approximate the biology field. The radiance field is wearing a color and a bottle of density for every part. So have a new direction to in the sea. Fo is the radiant field.

X is the input upon the position, Sit on the fact, present the good, the input of good. And in terms of it depends the same as the color of sigma presents. A volume density. Here is the volume render process. Here is the promise for the we found this table is actually available plan. Here is a message. Next I will introduce someone important not for lesson. The first one is new. News to news is come back to density and SDF it do the Information to the SDF and designate. The motivation is as a novel, basic method and also the strength of high quality service from the density. And use represent the service a so as you use as the answer to present the surface, is it very for volume of learning? Make a notion? It was a an image. I sustained of the same one has this formula.

The last essay is logical density distribution, and it is the the relative of the similar function and the area performance of youth from this. This is the reference of the plant, and these are for experimenting our service.

The next third is the instant at the DP mister NDP is a very use in practice because it's very fast and there is now. So this NDP is able like internet. So it is the internet dpu so that's not escapes the future audio and a small network for century to the in payment. So are they also used to have only for to change the vision and vision to the in this figure, it's not how it is given to recommend the group to rule, represent the artistic future model and giving a very funny. We would carry its future in these two, a scale, future one. Then they are not confident and into giving an mrp network. This processing is very fast here, is the promise compare with the previous method. This is the machine has less parameters and has a higher hundreds. The next day is partner, I think partner is very important, is not very elegant work about now. And I also listening how to learn is a basic for three dgs the only reason that the only field is %, and it's a time consuming.

Obviously, there is a method can be a general service junction. It's the same as a vehicle regarding the accurate public law from the king mountain view images we in some measurement.

So promotion for do is the lab and the popular and related is to approach it is only for parts of the only on the second in the public law. And here is the performance. And the next one is the into dynamic one, the dynamic. And then I also could deal with the dynamic policy. Infinite is time very unusual in American goods. Dynamic enough in the refer to the model of the then have the tool standing incident in the sunrise. And there's a dynamic.

And then you can also have the prevent the sea floor and the sugar position are gonna use the time position. Here is the dynamic and has a special flow to different reference and lost one. So it's not function very happy that had many items. And this is a very simple assumption. Here is its performance. The next the last one is a three dress for one of the ascent of three d process. And are defined by and each is defined by where the measures the center .. So border space and so on in this figure. So earlier, it's follow the volume regular not. Here is probably it's and performance we know as the three DS is very in France is much more faster than producing method. And I am good at it. Do I have any question most of increasing the presentation? You don't have a patient. I will introduce the last certain expansion is that and to use to expect the circuit from the institute presentation.

The first one is a Russian cool manual, and that is the whole space into override the code. In each group, according to do have any contract. And according to the opposite of is the of each comment, we could and could have the, I remember, the 56 condition and this condition you can use to 15 k commission. This is a bad people that you could turn out. So the handle for aeq this is rational beer enemy. So far mention book events for the remain up to see you for using $1 and then you have only deal with one very simple I already for service from last year and you are and they cannot deal with udf and the following Information udf in the proposal is a very excited and also attention.

And from udf imagine udf for good for

and actually, so this is the world of measuring, as it provides the graded for udf to get the opposite vehicle. Then it could be expensive. The coming to remember that. And then this is a promise. It is differentiable. Here is the Information. And the next is guaranteed, why don't people divide the core space into the number and the number of the case? But the little one is a little companies, GM head divided along the whole space into an overlap technology. You see, the type of pattern is a maximum for two, and the only three d three conditions. Here is the and then we add a comma, and the each column of the empire are default to adopt the details structure. Make us in the model, it is the paragraph of this paper. Hilarious. It's the performance, numerical performance.

And I will besides the Russian book for accounting is another, and there is another kind of service expression, because all counting with little companies and we should get. So this is not global popular has the article, but as for counting is but is much more useful and actually much cool. It's a tooth, it amounts to the men, the men, maybe some more common practical assumption you need to do to organize the interaction of the part of the service.

This is the in this group. So we sold the creative, that is the section, not believing that is our service. Then, and for each area, and we expect the intersection in the service. And this is service, and this is an excessive so service. We could find it's for the connective for code. We sold it back in each code and connected with four ports. And we could get a we could get a tango, we will get them back.

This from this is UBS for UBS is to improve the all countries. It is based on our country. And isn't the interview the is modified the Kef and for you. And so I think it's quite straight to the subject from the you see, from the world or you can use the it is the opinion. It is a cost fun method to celebrate the. So it's really confession. Here is a promise. This is on my team. Do you have any data? You can ask me in Chinese.

Never. He is a girl.