### CGweek2\_2-20240909

说话人1 00:05  
Now, let's continue the match. Yeah, I think for the cost project later, we ask the ta to be the in china with you. Do you need a new china group? You need a new channel. If you can like to send some information, maybe some questions about the cost project, you need entirely retire opinion to the question. I think I use and ask the key to set up for this cost to set up, which I prove. I think that's a nice point of view, same as cargo. Pr codes you can join, which I could hear, like to send some information about it, the cost of information on project. If you have question you can ask, then because of the cameras, iii on cameras and there's also discussion. It's not good. Not, I may not reply to time. Yeah. It's not going to use the discussion. If you, can this ok so now let's continue.

So this part I have introduced is a recommendation, right? A different tuition recommendation, as I mentioned earlier, the digital geometry possible is also very important under the model of us. Ok here it is an area of these geometry processing. Why is it a challenge? Is quite a single teacher you make us and the digital signal. And also this comes you really have to help you to so that which topic for the cost project. So it's use of a higher mathematics to design different areas like the acquisition, reconstruction analysis, value commissions, relations on a national transmission.

Ok so here it is that we can respond different than some parts like the three d acquisition, how to acquire a three d model in the new world. Some scanner device can use in a vision, everything to reconstruct the three d and the surface reconstruction. This is a long standing. Some original partner as because of all data is a 3 point card, and the body is 3 point card, how to construct the continuous service at the surface we can trust are not responsible devising. It's a like the limited knowledge and the image. Suppose the simplification is how to reduce the number of points, the result of providing the quality. Secret registration is also a founder. The secret registration is also a fundamental partner. Right? This is the first project, digital micro management project, a by stephen university about 25 years ago. And this is actually hard to use the data camera to see the value. Ok use the data scanner here. You can visit this scanner ok so use the they use a scanner to acquire the student. It can be sure the peaceful addition.

The piece of version of this fashion, this is somehow the information about the statue. Again, a a it's a huge the statue, something, the information. And this is a big piece of skills. If this project is for 20 22, precious was scanned into 30 nineth to scan the there is about a higher quality three data ok you have observed them. This is the optimistic model. Then finally, build the triangle match. This triangle will continue 2 billion particles. The data volume was sending too big box. In a single model as a 72 giga box. It's a very, highly detailed model, but actually, it's redundant. You can also observe the data. Volume is a huge. One model is a little advice. Ok so that's why we also do the signification of compression. Simply begin to revolve them to be always a number of parties without compromising the quality skills.

This is we use a laser scan, but it's a big the scanner, this scanner, it's not probably very he said they got some this is some new structure like your structure like to confirm a real time or cd model acquisition. They use a structure. He said, so here I show you the structure that is the scanners. So this is a project. This is a project, this is a pattern. The project of your project is a patent. The line is a typical pattern. For example, this is a line pattern. If the distance here you this is a hat model, the distance is different. So the line will be started. Is that this is the difference of discussion differently. We will capture three images, at least three image. You use the text of this partial of the line solving creatures, then we can obtain the disk. We can calculate the distance between the camera and the object.

Also, this is the principle of the the structure like that's can, unless the microsoft connect, do you know, the measures of the connect? You don't know, released by two oo nine. I suppose it's a gas system. The battle is released by microsoft is the key that they are issued in 2009. The first dash, sorry, the commercial desk is. Okay, so you destruction. So here I showed a

说话人2 07:51  
nasa byebye.

说话人1 08:28  
Structure. Life is absence. It is so they are the losses of the commercial that can not. And then the russian line, especially the possibility that says the company should be is how in chinese how we go on. It's also absence of use the structure.

I think if you into the aa and we have a is in 750 absence of big construction, also. A this is a commercial access. For the previous one in the lab, you can do the desk, do the structure that use the in a definite computer is a project on the camera, but the limitation is usually it should be, if you use a physical line, if you use the physical line, it has to the experiment, have to be conducted in the bathroom. Because it is an environment that light is too strong. It's a bit quick with the times of life attack.

But for the exactly using this difficult infra, that is basically it even in the outdoors and you still use it, do you know kidnap? Because it isn't. But if the environment that is strong in the performance that was really affected, yeah. So this is the best, its also the exports. This is a version one with this lecture or not at that time when I want apc student 15 years ago. The research paper development paper is very much. Sorry, it's very hard time like you will find a lot of. But most I think it really suspended in fashion and doing a china standard, you can use to control the device, replacement big games. So this is the one in parliament. So that is about this is the same reconstruction in the senate reconstruction. You look in that I should.

说话人3 10:50  
These are simply moving around the physical space and

说话人1 10:54  
will run them.

说话人3 10:56  
Noisy dead plants. And the dead sensor are incrementally fused into the voluntary representation,

说话人1 11:00  
rapidly

说话人3 11:01  
used detailed service change.

说话人1 11:05  
This is a reconstruction in this

说话人3 11:08  
example. These are wells into a three story bookstore and scans it in under 6 minutes.

说话人1 11:21  
This is the geometry possible. Given the desk,

说话人3 11:26  
for most estimation, we adopt a dense ick memory confusion, which can tolerate moderate levels of motion, a senior. Notice how you can walk up and downstairs will capture detailed geometry, books, tables, and other furniture. Despite the noise at mom, particularly useful for preserving comfort. Cars and planes can be scanned in a few minutes and easily before you do cat applications for games.

说话人1 11:50  
Yeah, but nowadays the accuracy has improved the city. We can skip another actually, and this kind of users released by email.

Okay? A real sense. So it's not expensive. 100 use a it's a part of that system. This is a for the author of the three d dynamics. Reconstruction actually is quite challenging. Therefore, university of communication, what is the university of communication? The university of communication is like the two persons, the geography is separately different locations. We want to achieve the university should be preparation is one achievement. For example, two person in a different location have a meeting. It seems that two parents sitting in the same room can use a three d can use a three d scanning. We can try to series in the motion and the process of data compatible, transmitted and finally displayed use some of the vr devices. Can you see the two persons sitting in the same room for me?

Ok this is, so here should be a temple for the, how do we construct the data? This is a difference here. You can find a lot of desk camera. But this one, this is a camera. It will be inside the city motion.

说话人4 13:25  
New algorithm for live multi view performance capture that generates compelling, high quality reconstructions of non rigid motion and shape is this

说话人1 13:35  
the reconstruction?

说话人4 13:36  
A system takes noisy input from multiple cameras, in this case, a dead cameras and produces a temporally consistent three d model in real time. This model can additionally detected with the rgb data.

说话人5 13:52  
There actually is a kind of china the input

说话人4 13:54  
to our system, rrgbd frames and associated second patient mask captured in real time from the performance capture rate. A learning based technique is first used independently on charging the frame to estimate correspondence bit. These correspondence is used to initialize a non rigid matching phase of the lines of motion as they wait their scarf

说话人2 14:18  
room.

说话人4 14:18  
Our system is also releasing a large frame to frame motion, as shown in this fight to see this robustness comes from both the learning based correspondence to build estimation as well as our long rigid man scheme.

A system had no priority seen as two scenes

说话人6 14:36  
had

说话人4 14:36  
not been demonstrated by any real time system yet.

说话人1 14:40  
This one is for the motion dynamic reconstruction. That is the kind of challenge that is very useful, the massive communication. So this is, if you use the three d scanning environment acquired to be able ok nowadays, we can use the large model foundation model. You from the tax ultimate right to synthesize. This is a released by the match to be released by the meeting. So how to be a high resolution tax should be creation in the past? And the description is real. Article 31. So now I talked about is my ship. How do things that are three part? I should

说话人2 15:44  
nasa. Nasa. Nana. Nana. Nana. Nana. So the

说话人1 17:31  
following is the areas of how do you check the user system? Ok I think the final issues there were in the 5 years apart, only the one. It killed very small. It is possible as I should be here. How do you see you? You can chat to the recent loss about three generation, the actress. This is hard to say final part in both academic and industry.

So this is we can we use the model. We use an algorithm to generate the streaming model instead of a standard for this kind of maps, either 3 generations, but you are important in the market. Generally, the three d model is very complicated structure, or find the case is still challenge. Is it still china? But it is a big example. I also have to see instructions relatively single now is very, very helpful. The generation pattern is unity. But there is someone else is one reason and that we should be crossing the data related functions. Is it relevant? Also? The treatment is really, actually, there is a difference about is a month is much smaller than the unit data for the unit data. The unit data set for three data. He even says the one last year is one large suited at the option works. It contains several million just combine different existing to, yes, I but it's a carbon that is to be on the carbon. The geometry is a very relative ok so it's just the previous several pages we should do.

So. How about the price of the data? You can use the algorithm to generate lots of things. So this part is a the generating the family if you use a scanning devices scan data. So the data actually data a is a a set of discrete . oka seven discrete points is just a sample over the service ok one client is the significance is probably. But in the adoption application, we will use a sticky model. You give me the settlements in this time. I found it's just a set of fun. You will challenge the downstream behavior process, the fun part to make check the relevant process for china.

So From the find out, they will be inside continuous service. It will be asked continue from this is actually this one is a long standard and fundamental product. Three judge in the past and started on several, 4 years. How to from this reply to be is this is actually that was the work on finance phd student. So a this is a different, this is a reconstruction for continue the summit. We become a different part, but this is nice signal in construction. You have some a set of history example, several points, right? How do we publish the secret that you have to know the probably most of the center? How do we do that? Is kind of what is the function? This is the reaction for what the time.

Now, this is what type is a closed model? Closed model, that means we know we should do now, we should all. But the formula was a pack is open model is there is no in them on if it's closed model, which is enough. This is a novel attack. The model is not close. This is a single model reconstruction. We give aa single model with each other. The next one is the for the dynamic is a give a sequence. 41, for example, you use a scanning device around scanning the motion of the human motion. If each part of each . of each frame is scanning independent in the channel in the campus, how do we try to do the motion? As it is? This is my the work they are produced by and also in last year. Yeah, sure.

说话人6 23:05  
Introduced, I know, serve a neural deformation based approach for temporally consistent dynamic surface reconstruction.

Given a sequence of point clouds without correspondence, is our method begins by selecting a key frame point cloud. We then construct its convex halt and generate a tetrahedral mesh from it. The template surface is learned based on this deformation, tetrahedron representation. Initially, we align the template service with the convex hull and subsequently refined it to minimize the discrepancy between the template surface and the key brain point cloud. This course combined strategy facilitates a more efficient and effective learning process.

Once the initial template service is obtained, we construct a learnable deformation field using control points, lending. We define a set of control points and predict the blending weights for each surface point by combining it with each control point. With the input of control points and brain index, we predict a rotation matrix and a translation, which are used to compute a new position using this specific formula. By simultaneously learning the enhanced template surface and the deformation field. We achieve temporally consistent surfaces by forming the template surface over time to validate the effectiveness of our method. We compare it with state of the art approaches on the past ak said

说话人1 24:38  
this is the input produced by different, massive and bring in terms of motion.

说话人6 24:51  
Dt 14 data set,

说话人1 25:08  
you are competitive is the single model reconstruction. This one is not happening, because we have to consider that

说话人6 25:21  
the temple and ema due to itself,

说话人4 25:23  
how to do

说话人1 25:24  
the response is also found we

说话人6 25:33  
entered.

说话人1 25:34  
We previously actually, if you use a scanning device, you uptake a 3 point part is a discrete part. It's a set of discrete parts. We have to use l is a reconstructed continuous service. It will expand the data structure, really, the firm is. And so also for geometry computation that you want to compute with a dramatic distance. So but is required by china. But if we know the service, we do the competition, it will be easy. This one is a is a small thing on this page. We show you the small thing I even you use a high facility standard of higher datas you suffer from nods. Ok we have to remove as a hotline. So hot liners, how do we consider it? Is? It's mostly terrible that it is similar to give it, right? But the input data extremely. Instead of the it makes it, we should remove the nice and with a fitness features. That's a sharp patient.

For example, a this is input model, inventory model, this it contains knives. If we have to reorganize, preserve the shop feature or similar feature, so that is immediately denied, right? So if it is at the boundary of the ash, right? How do you imagine that the device I have is that how if you remorse the eyes, the other which the shanghai is boundary, the edge is using? Yeah, because of the annoying is you are python, it can be shuttle is aa python.

No possibility the right, but no possibility. Have you ever known the student password signal system, but the only skill for ieie skill is possible for signal passes for the noise that removed the high frequency. You have had a little positive. You apply the low possibility to remove the high frequency for the edge. In the image added, high for crisp on you. From the fourier information. We are the frequency that what is the frequency to show you the last solution in the change between the neighborhood patients? And the chain between neighbor issues, if the like, 1 piece of the values, too, and the other case is 100. So that is the focus is safe. The training is the higher result, then that would be wrong. Right? So for the annoyance, after you remove other regions, ok the denial of this bondage is there.

If I had no possibility is on the if it's not good enough, this actually is, so that means a how are you have a compromise? The shop features? The next one is certification. Simplification act is a tradeoff between the areas that I mentioned the digital biological project, right? The standard data, a a it's is highly detailed model. Once a single one model is a real model facility gigabyte, actually, it's everyone in the number. If you will start the data and test data in your performer, revenue is time consuming. It's time consuming. We can reduce the number of particles with other providing the problems. This is it's a tradeoff between the areas size. For example, this is original three model in a model. You can give 500 people disappear on. The details are intensely smart. But if I reduce the number of chinese, what happened? Ok if I reduce the number, the number of charm will be 110. The geometry material is still fine, right? But if I continue to reduce to one ten k or 1 k or 020, 1 100, so that introduction you will miss about really missing, but the data volume is much smaller than smaller that reduce 5,000.

Okay? Right, reduce ￡5,000, right? But for simplification, it actually is a amount, right? It is a position problem, which attacks, which are going to go intuitively for the smallest region. Right? We can use a few amounts of time.

If the region is finding here, we have to use a lot. This is the intuitive idea of that. Actually, this is a combination which part we use more triangle, which part? This is the condition. So if you optimize, reduce the user, as a few of the number of time will take a kind of a model to skill. Achievement is a simplification part, also like this shape added. This one I have to actually a modified surface.

And that is we want to cut the wind and paste the wind to the bunny, right? This is a hobby. You have to do the design amazon, how to cut and how to test that you want to transfer to to deform the disposal, to define the skill with this kind of a pattern. This is the formation. If this is an information, so this is a cheaper parity, cheap party, you use a software to add it as possible. What's the underlying average? For us a week? We focus on. How do we have an argument here? Is this is a question. If you use that the software that can be found on it, part of this select this meeting and part of this and transfer to the it should be target model. But how to design the online? Also, this is the model. This is a long answer. Is that in operation practice, so that will give my talk, give myself. And we want in college intermediate models such that the because the soft model, it has mostly transcendent to the target model.

So this one is that we can use a waiting conversation right industry, give us three parts of that, give us 3 kinds of animals. We can assign different wheat. If we can assign different ways, then you can sum up these three models. We can 67 new model.

But this one is not simple submission. When you talk the problem, you have to build the response. You have to build the response. This is that respond to? This is that you sum up, but it's immediate. But if you don't know about this map is come to the hat. If you sum up is wrong, it's a it's a good argument object. Also is the national working. For this kind of problem, the fundamental or the bottleneck. How to build the response? How can I know this ladder is from this ladder? Is it only a several triangles? The data structure is just the tax base. There is a face list. How do we know? This is left is on this left. You have to from the average is that the average, so if you on the do the humidity registration given to you, left view on the right view, is given the response which picture, in the left view, there is one picture you will find it out.

It's a picture in which the picture, right? This is, in addition, and that is to use a three d reconstruction. Is there a meeting that you have to build the exam? Is that it's about the two news, catching the same thing.

Ok but it will be project different location to be enough to find it is ok so also is the art. Art is not that if you build a response, you don't have to. So this is well, this is the supermarket market.

This is a institutions shape the registration of response in the sugar industry response. The lights of the camera, the line, right? We have to build up all is a politics. The japanese shipment is over the party is so we have to we have this is also a fundamental problem, value geology possible. Probably it could be boiled down to aa registration problem.

So this is a soft, not really just your dense response, dense response to final. Give us some key points to find the key points of responding ok so like, this is the human motion, even it's aa secret mode, not human. They are typical human. But, for example, this is time t one, time t two. Each time is that the model is captured in the camera space. It's a scanning device space. It is terrible. The object space. Instead of the object space, we don't know. The hand is response. You have to use algorithm in charge. So this is the best response and that the human company, but you can see you have to find in 21, 22, this picture is on the situation. This is not awesome as low transportation of article definition.

This is also a challenge. A fundamental problem to process. The sequential difference process is richer. Ok so this previous part is about these, which are the investors not. This maybe should be a second on that issue. That is what is that? For I the animation is the most popular technical motion touch. Do you know the motion touch? Even possible always is the motion capture, I guess, for the examination, motion capture I to the capture motion. Like in this figure, you can show you that I want to. This is the actor, right? I want to tracks up at the motion of the actor. They use the motion to drive us about three model camping, to generate how to track that the motion packets. We can use a multiple here. This is the camera, multiple cameras. It also be put some marker to the the drive near to the drive.

We will detect that location, use a lot of at least two cameras to detect the three locations of the models That this is a three d execution and that's terrible vision, is a terrible vision. Then we will obtain based on the marker vision, we will connect the marker and review from the step. You can do the study, then you can use this study to drive them about the tackle judge the company. So this is for this one to the chance of facial expression. How to max officially? He said he put some marks, ok it's the app. The camera will be attacked on it, then to view of these fast model. Each one we know the response. Computer response is the campaign. So this is the motion capture most popular the foreigners that you the following election do someone using most kinds of most apparent company using the movie production in the movie production? Also this is some admission transfer.

So for example, just to pass a as a designer areas about ten accent motion to the and rather similar to the admissions are the most important to build the response, the hand that will be mapped to the hand. This is the two model maps of motion to the that they are the model. This is the area ok you have to design everything. It is a matter of the most of the house to the average is a line, the finger motion.

Another one is a risk of issue. Tackles. This is the facial expansion transfer. Use the facial. So here this is the panel.

This is the camera, and so this is the output of the camera. Actually, by the canada here, you are observing some red part, right? This is a landmark ok so then my part detected the algorithm that detect the mouse, the nose, and the eye, ok for to do the response between them. This is a lot. So you drive a lot of generally official expression. Here I should do that.

说话人2 40:31  
You don't want to make this baby angry.

说话人5 40:46  
So hungry.

说话人7 40:50  
What can I eat?

说话人2 40:52  
Are you, wow.

说话人5 40:57  
But actually,

说话人1 40:59  
is this happening when you have more than

说话人2 41:01  
10 years old?

说话人1 41:03  
But nowadays is a practice. As long as it has been one, it has been, yeah,

说话人2 41:11  
I

说话人5 41:14  
had

说话人2 41:15  
I am

说话人5 41:19  
a

说话人2 41:20  
grumpy, old man. I want to. I don't want to shit soon.

说话人1 41:28  
This is the use of innovation patterns. You use a camera, the rtv cameras. And if you have a denmark and the transfer of expression to them, a lot, actually this kind of pattern has been much less.

So usually in the movie production, as I believe what she said, taxi take about 11 years ago. Another is a post simulation. Again, it's a physics basis in the nation. Like the this one participate generally is the causal moment.

For this one is the use of physics is that you is a we will be further physics post at several points particles. If the particles are connected with screens, when you squeeze the real team, you is that value. You can do the dynamic system. You can generally the data is based on the using the physics loss to severe. Awesome. This one made the natural or dominant situation. This is one even nowadays. You will try the problem. So how to simulate the problem? The water and the fire is a skill challenge. Problem is actually, it's based on the some other mathematics. The field of pde and a partial differential equations in aaa large partial in. I saw that in similar. Even nowadays, it's in china, in general, the purpose of realistic situation. This is the half of you that the producing education.

So the third one is really also the most in china. Computer graphics a a is a ii mentioned the relatives is generally in general in the city to the geometry will be part of the action nicely. Generally we have passed by the two patterns, the photo is mistake, and then the photo is mistake. So what is the photo real estate? So this is the photo. So it's similar to the h handed by a digital camera ok so after that generated by the great averages, synthesizers are in the average. If you want this, since that the synthesize of that optimal effect, the light condition, the shadows of the lightning must be a so photo realistic, it seems a synthesized invasion are captured by a digital camera.

And for the long photo realistic now, all the relatives and you can talk. It's a lack of schedule and for some special program or treating standard industry is attacking for technical illustration. And technical illustration is a special. It's similar. It's like a sketch for. So this is not for this. This is a random. I also want to mention the the mirror is awesome. This is you will find some online course. This is a public research. Research conference in europe is actually recently emerging topic ok it's a but there is no some definition of what do you do, what do you do. This is from what is a rough definition? What is usual? General usual is how to language is a neural network to achieve it, to synthesize this image ok that is a new level of traditional learning technology ok so instead of pre defined in power to do the process, like in the bottom stage, so here we can use it.

You'll have one it to replace the pre defined stages. So based on the models of traditional physical classes. So we can even do that one. In the case, actually differential, awesome and what the paradox should be differential. Otherwise, because you haven't treated that one, but it is not a vegetable. We haven't treated that one. Here. This is a it's very interesting. So this is a somebody gave a scale of our paper to research advice. You are ready? Ok so how do you do that? All? Set aside the images ok here I want to show you the this one is a very popular paper published in the eccb 2020. Okay? Also this is the best paper of ec design article you mentioned. Ii remember it's a how do you mean you use? I probably think a it's hard to use your level to do the new senses. So that is the general idea is that is that this user that was similar to a lot of running process.

So that is even, for example, you want to build the to synthesize any views. It is 360 °. I only capture, for example, 100 views. I really trained you that after the training, you can sample any views is in 363 ok so here so we could be one

说话人5 47:49  
early waiting skills or nerve.

A new method for representing complex scenes and the cheese in the arkansas producing this, given a set in that image is going to see which in this visualization is unlike the world into it. We optimize this only

说话人2 48:03  
metric

说话人5 48:03  
representation of the scene as a vector value function, which is defined for any continuous bio coordinate consisting of innovation and new direction. We parameterize the c representation as a fully connected deep network. This takes much difference to find an output, the corresponding volumes in the directions committed march. Because at that point issue, we can then use techniques from volume memory to composite these values along the camera rate to render any pixel. This rendering is fully differential. So we are able to optimize the scene representation by minimizing the error of rendering all camera rates.

From a collection of standard rgbn case, we first show comparisons to top performing methods on synthetically rendered. Scene representation networks implicitly represent a scene using a fully connected neural network. So ns have issues with multiple consistency and are unable to represent high frequency details. Local level of fusion use the free trade network to promote each input view to a high resolution three model. Inconsistency is between adjacent volumes causes quivering artifacts. Neural volumes encode a scene as 128 cube loss rate and use a workplace to better allocate these limited samples.

However, there is still an aim to represent high resolution content, such as fine details in the ships, texture and reading. We see the same trend in all of our synthetic test scenes. Our method, both qualitative and quantitative, outperforms the other methods.

说话人1 49:38  
This part is an input. They are only given a limited number of units.

说话人5 49:44  
You can sense the energy. Here. We show the results of our method on the six other objects in a realistically rendered is with complex geometry and nonmembered materials, with a forward facing phone camera. Som use the recurrent network remarks from david seeds resulting in inconsistent appearance between letter views. Lff blends between multiple renderings with different limited fields of view, resulting in flickering are captured by our presentation, such as a semi transparent appearance to all of them in speculative and complex inclusions in the christmas tree leaves an order.

This

说话人2 50:18  
is perhaps

说话人5 50:22  
this geometry is precise enough to be used for additional graphics applications, such as virtual object insertion with

说话人1 50:30  
yeah, so this paper for the topic 20 in the past 7 years as a hundred, someone is this topic we are in the spirit.

So you find interested in community. Awesome. The priority is because this is a new role. It's a euro industries in nerve and shock.

And nowadays the last day, another human as your city functions plan to be functions. And so can I change the real time? But the revenue process is only one level, just. So

说话人2 51:13  
it's also

说话人1 51:14  
three gs three options spanning. So it's also talking before you hear the answer spanning. You're always. So the next issue is the aipc aihv so is how do you use the foundation model? So it can be from image, from senior units to model units. It's from a tax industry model and from a single industry market. This is the text image text.

说话人5 52:01  
Although I have shown amazing capability just from freeform tax funds.

说话人1 52:06  
So this one is a rich text. So what do you rich tax so that this is a big tax. This is a big tax. So from taxing this text to images, not me text to images is not the generation. The previous one which is you can pay tax.

But this is what the issues of the if they call the rich task, you can use better tax right of the phone from the style to control the start generating movies. Is it hard to reach style? You can assign different colors to that in the past, right? So then if you can choose that the style generally image, you can use a footnote, right in the us footnote, is similar to the attitude. So I will show you 750 project.

说话人5 52:58  
Professors allows visualize the human imaginations without the requirements of artistic skills and technical labor. But all these models you spend text must be an interface. In contrast, we communicate with each other with wechat on almost every other location, like emails, web pages, news, and books in this work and to enable expressive text to interaction with which text. For example, the folk style expressed specific value. This looks added, this looks

说话人1 53:28  
stable.

说话人5 53:29  
This looks spooky, and this is a resonant.

Let's take a look at some results with recess. Here we generate a beautiful image with taper division xl but you may want to change the hair color. With rich text, you can do so easily by choosing a specific text color like pink or make it green. Home styles involve emotions. Here, home style be localized, artistic editing. We can also change the style of the lifestyle into bakers. Painting. Here is not an example of all styles. The image looks great, but the guitar looks a little bit boring that spice it up by

说话人6 54:08  
inspiring viruses

说话人5 54:10  
for the guitar, but who know provides additional descriptions that complement original text.

For example, you can use it to describe what kind of dress it lay. The girl wears. Footnotes also provides an excellent way to interactive, explore your visual imaginations. We can add the liter on the phone, changes season to winter and write words on the signpost. He is not an example

说话人8 54:37  
this time

说话人5 54:38  
indoor. We can add some candles and plants, add some colorful pillow to make the room feel more vibrant and change depending on wall. Sometimes it's hard to describe exactly what you have in mind using text, but you can use the hydrogen to a reference image. This allows us to generate a scene with a specific dog, good boy, another that any respects to give to some attention and possibly,

说话人2 55:05  
this

说话人1 55:06  
is the following policy. The algorithm. And how do you design this thing?

This matter To that discussion. So you have interesting is that an interesting project? So another one is a a it's a pure, as far as it, a became a single sparsity to synthesize it about you density or 360 meters. For example, this is the only given 4 years and to synthesize 300 enemies. So this is the work on the world are produced by which these students, this is the focus of positive. How do you use the appreciate the state opinion is? And how do I find a few parts? Is that? So there is a survivor. So you are interested in that you check this the case for the behalf. So here they are all of the sun.

And so here is it only the input is a a single images, synthesize our views and synthesize our views. Also, it can be the dynamic. So the input is a lot of video, is the capital of the face. The camera is fixed, but we want to synthesize all of your videos to capture from other occasions a we can check. You can find that the camera is, it seems the camera is motion, right? The camera is moving as you put it the so you put the baby with the camera in the face for that.

But now we want to use the algorithm. We see the capital is moving from a generally completely from the other use. Okay? Yeah, so this is a very interesting

说话人2 57:41  
changes

说话人1 57:42  
website. And so this is another into past years. So the input is 1 or 2 or 3 years. The same as that is also be

说话人2 58:00  
thank you. And this is

说话人1 58:19  
a year ago.

说话人2 58:25  
And and and nana. Nana nano.

说话人7 59:04  
Nana,

说话人2 59:23  
byebye.

说话人1 59:26  
So this one is a there are 21, a single, or two views as possible to six sites. That's you can change them. The camera is really so this is from the past to the panorama. So I

说话人2 59:53  
nana, nana. Noise. Nana. Nasa. Nasa, nasa.

说话人1 01:00:36  
This is from the chair and rather the 67.

So here I want to have a size, so you can generate a high quality based on the the prediction, large amounts like stable being and is several being more being projects is a huge model. Appreciate that you can find it based on the model that's a stable building. It had everything changed new contract. Yes, this is a single image that gave a single image and the step the synthesizer will be.

And so for this one is that gave us this image, right? So this is sad to me in the motion. You can to generate them to generate the thing. And that is the study and you study the results. So it's I don't want to see. Ii actually there is no in traditional computer brackets, you started to drivers, right? That is indeed spinning on other issues. But here this is a user. There is no implicit. Sorry, there is no explicit modeling process. Just in the generation, it can be the condition ok this is a but if you get chinese look at that, you have a standard, you have a lot of you have to look at the senior are other operations, the generation. Right? But this is a new generation as a condition and system we have. This is a single, this is using tax. You may be generally the three assets. And when the three model this class you got this. Yeah, this year is in the basketball season. Ii actually one program the mostly how to and shut the data, how to standardize the data.

So maybe

说话人8 01:03:13  
every grand creation begins with a spark, but it's the relentless hustle that turns that idea into reality. Introducing play a controllable, large scale general model narrows the gap between imagination, beauty creation trade on an extensive beauty data set, clay features a 1 . 5 geometry model and a one b material model. Within a minute, clay can generate detailed three d assets with pvr materials, adaptable to various conditions from text image to three d the core of play is the large scale generative model, inspired by two d generative models.

Our approach, d noise is three d data in a compressed latent space, which is symbolically smaller and more computational efficient than 43 d dimensions. Our latent diffusion model

说话人7 01:04:01  
constructed

说话人8 01:04:02  
purely with transformers are vae especially designed to handle point clouds at various resolutions, ensuring an adaptive latent size to address the limited availability of high quality three d data sets. We developed a customized re measuring method that converts three d data into watertight meshes, and then into occupancy fields, meticulously preserving essential geometric

说话人7 01:04:24  
features, such as

说话人8 01:04:25  
sharp edges and flat surfaces.

Moreover, we utilize gpt 4 feet to create robust annotation that highlight important geometric characteristics with the aid of our data processing pipeline and model design generates detailed geometry to rapid and efficient creation.

Tx so

说话人1 01:04:44  
I

说话人5 01:04:45  
think there

说话人1 01:04:45  
is online. The you can use this one, there is seven, not try seven is not download the model. You have the page. Ii remember it's quite it's expensive. 709 of. Yeah, you can try several. Ii understand why, because do this work is the customer. I see how do you probably how are you considering the company the first computer? Actually. So I remember you can try several times, but you pay creating the data. And maybe i'm not allowed to try, maybe 1,010. Also, there's a then that should be as a matter is also industry come

说话人2 01:05:43  
up to

说话人1 01:05:46  
you. But you mentioned that double and we want to use more.

This is we are also have more, but maybe we have to find what do I have initial? How do you start from these two? But now these three is 1/3, right? If you cause the schedule, that's one thing we have to, actually. So this is attached to the first, just in the bottom. In the car,

说话人7 01:06:41  
we introduce dress up a three d garment generation framework, d friendly and high quality garments with an auto regressive model via natural language interaction. Garments has great influence on our appearance. It also expressed human individuality and perspectives. In the cg field, sewing patterns offer realistic clothing simulation and true rendering. But they require considerable manual effort from designers. In contrast, our method introducing a customized garment generation pipeline with natural language guidance for designers to create high quality

说话人2 01:07:19  
garment assets.

说话人7 01:07:24  
We began with a large language model to interpret users requirements for shape and texture forms. Then we introduce sewing gpt generating sewing patterns under the shape of guidance. For training, selling gpt we designed a quantization process to convert each component of the sewing pattern containing translation, rotation, stitching information, and panel edges to a sequence of tokens.

Once we train a decoder, only transformer, it enables us to generate the tokens or aggressively, and further to quantize them to sewing patterns. We also find to make a stable diffusion with three d codes to generate pdrg friendly garments.

说话人2 01:08:05  
And

说话人7 01:08:06  
our method also supports texture adding by manually drawing in from the awkward grievances across various types of clothing. We can switch key points to examine the garments fit, adjust lighting, to verify clothing is

说话人2 01:08:22  
the text that

说话人1 01:08:24  
goes without.

As you have, this is what you send. Sketch is scared and she is seen on this one. I want to show you about this one. The game. So this year is the recent released by one. Okay? This is a real time recording of people paying games, similar entirely have your body instead of the video games. So a it's a that is simply not, it's the country that it is aa powerful gpu right? So rather decision if the gpu is not, if you the quality, the recommended image, you believe it, right? So it's a transition, you guess. The aap is that is a wonderful. But this one is used the newer model. So how does it suggest you use a newer model if you sense of not writing? So that is like a promise. That's a treaty equation. This is a treaty. Ok so that's a human model. Do you use this as a part of the synthesize of the information? It generated? One. The next way is that triggered to show you a shooting operation.

This is a game engine entirely that you are one. So that should be, you are like the only agent. Just as soon as the law is a medical crime, the problem is the network will synthesize the next the scene. Next, the time is that means you certainly should run. And it's a platform we were synthesized well for.

So here, the tragedies, how to achieve your time is different from the transition. It's like the so far against the operating system that it means or others. A is a software. But you can use, in general, biomassive, working on projects, generating a lot of generators are operating system, all contact with the system. Instead of a previous stuff. There is something, yeah, so this one is a very, very interesting.

说话人2 01:11:21  
This

说话人1 01:11:26  
one attach to that. How do I you can use some reference image and some text to educate

说话人2 01:11:38  
nano. Nasa,

说话人1 01:12:30  
nano.

说话人2 01:12:47  
Byebye. Nasa.

说话人1 01:13:06  
How is your asset? How do I change? You have to create aipc there are a lot of bonds. Everything you see, there are bad people. We can search it in our country. Hundreds of people. Generally, here, I summarize this patch. So this patch is three models. Three models are the modeling and learning and animation for the model is the data structure from to your city object representation.

This part is really focus on create and creative attitude. So the model is actually based on differential geometry for the rendering. If the rendering is a synthesize, the process to send the process of the synthesizer to emission, a so that we should empire the textures like information. This is the but for the application, you want to just generated the secrets, right? Motion secrets. So the animations in the mathematics. How do you get the motion? A physical law in general? Motion? Yeah, so for our focus, we for the lecture, as I mentioned earlier, we focus on traditional. This is a renewable timeline. The class projection is also known a as a last mission. How's the tracing? Use it. You reduce it. Actually, this is the body is from physics, and it's an equation is an equation to formalism. You are rather diffuse reflection. That is a diffuse reflection to option how to use an efficient model.

In the following lecture, we do. That's objective modeling. That's how do you compute draw and draws draw a so called line to the operation. And also a transformation. The transformation is a bonds, and that transition, equation two, d rotation, three, d rotation. The stealing of the show. It's the matrix of operation. But based on the leading algebra, ii think leading algebra, all of you in the past year. Here is a one, but how about that? If you are engineer, that's all right. The meaning have to. This is a major survey, but for this probability focus is not difficult. Just know that how to be is that the universe, which is right the transpose, basically, operations on the matrix. So he said that foundation is to, because you have to project the two d three d data to the two d space. We also have to do the projection.

Then the max is awesome. This is the record we have to detect that. We want to project the hand to the only this this site is, right? But this site is invisible how to know this site you haven't designed a result with the pattern of this sentence. This one here is already the rendered image. This site should be not. Okay. Here is so many global factors and here is the power, here is the target. Review this differently, made the research on the profit vision, give it to us. It can be that at. First, you have the high touch, is my fault. Have you ever used the look at me, even for two d data. I think for three d data, how about you have your project? How about your have a second year project? Final year project. Chinese is aba should you learning? You do process that to be a young.

I think you may have some those things are how do you know, you guys need a pipe watching? So your principles, it's not behavior. The TV is still using it too. It must have students is not as. Yeah, also suspended a couple of three d data positive project is without markets. Yeah, so we will introduce this problem and also introduce the some tasks like the generation recommendation, then increase the recommendation. How do you represent representation? Is a fundamental, different kinds of that would be basically use a scientist function on the outside is a function, is that and how to do that function. And also that object mentioned is the autonomous driving. So probably have it from the like a 7 point of this kind of project. A lot of my students, PhD focus on the publishment. Six party, I guess how is very, extremely and others are 3 years. And also the should be able to power.

Also the nerve that's really cautious back and global new citizens.

How to say the same nobody from this past years to introduce some activity for us. I think this is, but for the tutorial, a it's a hard content do not taste it. Is that Asian? It's only limited the cost in the final examination. Meantime base only the traditions of the company in terms of interesting. That's a tradition. No. Like this product. In any case, this part of tutorials, is it to provide us cost budget? But they do not in the findings.

说话人2 01:20:24  
Us is

说话人1 01:20:34  
significant problem. So I ask this is the first one. This is an introduction. Here. You can hold up face on the easy backwards. The drug a nowadays is a very interesting. You can use generating a model. It's a set of issues. I have a question. Where is three d shape? The institution? How do you define these a language? The 3 minutes? What 3 ° is true?

Actually, there are 2 kinds of registry. Why is the region registry? What is regions? For example, my two hand, if you want to see this is issue, but I want to align. So how about that you have to do? The location is not and location transition, the rn issues activities. If you rotate and translate it, there is narrow the distance in the 23. Is you, right? How to measure the efficiency? Actually, there was a distance on his previous history. Models are challenging problems. For image is not a difficult problem. How do you do it in some ways? It's just a matter of that msen l the psr or the ssm I guess you're right. We just have to respond to the pitch, the difference you can respond to pitch a senior model. How do we narrow the distance? There's no response. It's only a set of parts giving us this set of ones, this set of ones. How do you know the distance between 2 sets of parts? No, based on, you don't know which one based on which one.

So actually, there is a boss of one situation problem. Happy to do this on. The company is efd first of all, is to find out of one of our national. This is a user compare the distance. This is to drive them go back to the registration. The regional register. Rotation interests are and translation to the key. So that is quite common. And this is a property. So this is a region, which is, that means, which is, there's no Information he says reaching on, but not reached on. That is response. It is final is point to point is more. Chinese is best response. You should have to find all this point is respond to this point. This is the best response.

Then the dense response, also, if you want, for example, is this course, ok so the close is a before right in this box. Is that the Information? But how to find out this is more Challenge. This is the only. So this comment is under 20 years, 30 years, the possible message you can write it for the part. It's just in the congress select the union process. It's like the motion estimation or optical for similar. So given the first time between the a picture from different views, yeah, I I want to study the students, pH DS and the worst folks are working.

All right. Institution. Which is post the body, the actress to do those charity. So for the cost project and they have real big students so much, we get involved. We should be updated pm five based on topics. It's that happy one. It may not limited is a listed on it. How can you test level one related to computer platform? Related to the generation, related to the deliberate participation? I will give you some topics for reference, but it is not 1 million. You are artist. You can say that one anymore, but it must, but you kind of do the next limited observation. I don't know. This is normally likes, as you made it in touch, is a novel in this part. So if I make nothing, I can promise, as I mentioned, I think, as a model data process, this is a generation. Italian is CS in the city, you may come, there's another party there. I said, what is it the same cost in the mid campus is I kind of see that they are the same cost machinery and that is a cost project ok so some students will submit the cost of it, the difference one project for two classes.

So it is not an event. I should remember serious issue. If you are submitted 1 . 2 different cost, the system that you can have, we'll scan your condition ok so that's why kind of say that you need to ask you should do it regulation. This is not related to about it. It's a huge computation course, right? So you must so that this part, this is basically become it's fine, even you kind of both you and it's fine. Even you really do it with them.

So also you can try to spend on how do you do your part code. I think most of the project, the codes are public project. You can watch it already to. Yeah, I really do not. Can in the seven. Is about it. It is such a you are interesting and also for that, it hard to do such increased 700,000. Each is seven for this level. Which copy? Interesting, I think after this other, how are you?

Ok? Should have? Both is help you. Even if you want to kind of job. Any more questions? More questions? If you have no more passion for this lecture?

说话人2 01:30:23  
We

说话人1 01:30:25  
they start. So what's the next step to manage? Still the same way for seven? It is actually something come you come next year for me.

说话人3 01:30:54  
For this, I

说话人1 01:30:58  
have a lecture with many campus in Hong Kong. You are on Friday from the three to it also 3 hours for undergraduate. 6 hours and we will finish actually the floors. There is 1 hour to follow from us 6:57 pm but if it is exactly, I think I can't catch it so much. So I will come to, I also had it going for a long ago, but a lot of stuff from extreme. Yeah, I will transfer to you. So why ok so for today's match, it stops. Data will fill up in childhood, or we will use of each other, right? Too. Where you get the wechat.