

**FLORIAN**

So welcome, everybody. Thank you very much for joining my presentation here today. My

**COENEN:**

name is Florian Coenen. I'm from Germany and working at Autodesk. I'm a technical specialist, and I'm basically an industrial designer working in the automotive area. So with design and visualization. And today I want to show you the workflow of doing how to transfer animations done in 3ds Max and Maya into VRED.

But I'm a little bit interested in who of you guys it's working with VRED right now? Nobody? Some. Who of you is working with 3ds Max or Maya? OK, so we have here many guys from the media and entertainment area, isn't it? OK, so then I know potentially there are more questions regarding to VRED or something like this, maybe I can go a little bit deeper into VRED stuff. I think my presentation, I've done this in Germany, takes roughly one hour 10 minutes, something like this. So we have plenty of time to a Q&A session.

Or if there's any need, I can take sometimes a little bit more deeper in detail in a certain way. OK. Basically, the animation workflow in VRED is starting with the modeling texturing done in 3ds Max and Maya. You already know this, all with other softwares like Softimage, Modo, ZBrush, Blender or Cinema 4D. There you create the content, basically.

Next step is doing animation, as well with Maya or 3ds Max. Beside of the other well known software packages. Not all of them are from Autodesk, but obviously, I know that there are other software as well. And then the workflow in the next step is shading, lighting, and rendering, which we can all cover within [INAUDIBLE] in one go. And then the last thing is the compositing thing.

This is definitely not my expertise, therefore I will try to leave that a little bit out. Compositing obviously done with After Effects, Nuke, Flame, Flint, and whatnot. Yeah, this is the workflow we can cover. Right now what I'm trying to show you is the workflow from the animation done in 3ds Max and Maya into VRED. And we can do, for example, animated objects all with standard key frame animation.

We can transfer animated cameras into VRED. We can do, off course, the 3D models, so the 3D content. We can use geometry cache and point cache for 3ds Max and Maya. I will come to that later. And I will definitely recommend you to use FBX for transferring all that stuff into VRED. FBX, we can cover everything with FBX. And therefore this is the strongest transfer

format we can use.

In my live demo I will show you a cloth animation done in 3ds Max. So this is a little flag running in the wind. Then a car animation in Maya. And of course a camera animation in Maya. And I'll show you the Bullet/Physics animation from Maya. My expertise is more on the Maya side, but I guess you guys who know 3ds Max, you can all do this in 3ds Max as well.

A Bullet/Physics animation, a physical simulation, this is basically the same. I can also do the cloth animation in Maya. So this is the same work flow. But I just wanted to show you a little bit of 3ds Max and from Maya. The example I've prepared for you is-- so all the examples, I'm assembling all together in one scene file. The scene file is an animated car.

As you can see here it's roughly a flag. And the car is moving along a lane and is crashing into a wall of LEGOs. And this is what I will show you right now in a live demonstration, directly the software. OK, so far-- I think I have to sit down. That's not really good. I'm not trying to hide myself behind my screen, but I have no other choice. OK, let's start here.

This is that the starting scene. This is the car. It's a NURBS car.

**AUDIENCE:** [INAUDIBLE]

Oh, of sorry. Thank you very much. I have to duplicate my screen, not to extend it. OK. Here we go. We have here a 3D model of a car. There's no animation on it right now. It's just a model. AND of course you have these two lanes. The car itself is a NURBS car.

As you guys don't know that much of VRED I will explain it a little bit more better. Obviously, you see here, OK my new clipping is maybe a little bit too high. Let's do something like this. You see here, obviously, the not a NURBS surface. You see here a tessellated polygon surface. But in the background, as you can see here on this icon, this icon tells me this is a NURBS surface. I can make this visible. This is a strong part of VRED. VRED can do NURBS ray tracing.

I'm right not in ray tracing. At the moment I'm in an open jail mode, so everything is running on the graphic card right now. I can switch to NURBS ray tracing just to show you. Enable NURBS ray tracing. And then I have to click on the ray tracing button. It takes a while. So now, as you can see here, obviously these are 100% the NURBS patches of the car.

But on top of it, we have for the open shell computation, the tessellated surface or the

tessellated polygons as well. I will turn that off because the performance of my laptop is not really perfect. The big advantage of that is, for example, I can re-tessellate my object any time. Just go to [INAUDIBLE] the rightmost button, edit surface, tessellate surface. I'll just show you a little example.

So let's, for example, re-tessellate this to course. Go to tessellation. And as you can see, I have less polygons, and I could do this the other way around. So my workflow, or it could be another workflow as well, what I have done here, I'm collecting all that stuff, all the NURBS surfaces from [INAUDIBLE], whatnot into VRED. And want to do our animation.

But I want to do the automation, let's say, in 3ds Max or Maya, but therefore I do not actually need to animate my object as a high poly object or as an NURBS surface. So therefore I can-- what I have actually done is I have re-tessellated my object to a low polygon object, which makes definitely sense to speed up my workflow, my animation workflow in 3ds Max or Maya doing that stuff it with a low polygon object.

OK, back to the topics. The first example I will show you is in 3ds Max, a flag. And as you can see, I have here already a dummy object as well. This dummy object is normally used for my bullet/physics simulation, but I've just imported this to have a rough dummy, because of the proportions of my flag. The flag itself is built up like this. I have here a garment and a cloth on top of it.

The cloth is, basically, the modify that can run the simulation. Within the cloth modifier I have the object properties of this rectangle. There are certain presets. I guess you know this. I don't want to dig too deep into the stuff how to create the animations itself. This should just be an example. And of course, I need a force here. In this case, there is already a wind modifier. Oh, it's saving. It's saving.

And what is it doing? The flag is moving. And you basically have to go to simulate, simulate this stuff. And on top of it, OK, I have here a shell modifier and a texture modifier. I have used this point cache. The point cache is doing nothing else than recording every translation of every single vertex of the object itself. So you can see this as I can move my time slider forward and backward.

This cannot be done with a physical simulation. This can only be done with a baked, or with a point cache, which is where I have all this information on every single frame. OK, this is the first step I have to do when doing a so-called vertex animation in 3ds Max, as well as in Maya.

I have to create this point cache in Maya. It's called the geometry cache, but it's basically the same.

And the next thing I have to do-- and this is in another very good documented thing-- I have to create a selection set. As you already know, or I guess-- let's do a quick example here.

Selection set is here right in this corner. Let's call it sphere. So select the object. Going here in this drop down menu, type in whatever you want. Click Enter. And then you have a selection set.

So I can basically select my sphere, or my selection any time. So I've done this here in this example, obviously, with 10 additional flags. So for every single vertex animation I have to create a single point cache and a single selection set. Of course, there are, potentially, other ways you can make one object from out of these 10 flags. So something like this, I haven't done this.

OK, this is the selection set I've created. And that's basically it. I can now go to Export. Export selected, or let's do it like this. I'm selecting here my complete flag. And now, when doing an export, File, Export Selected. Next thing, which is coming up, is the Export [INAUDIBLE] dialogue. And within this [INAUDIBLE] dialogue I have to tell, now, which kind of point cache-- actually that I'm using a point cache, And to which selection or to which object to point cache has to be assigned to.

This is, therefore, the selection set. With this selection set I'm telling, basically, I'll give the information where the point cache when loading into VRED has to be assigned to it. So I have right now, here, the selections set flag two, or let's say here, flag one. And I have to enable the animation, of course. Basically that's it. Nothing else has to be-- yeah, geometry, obviously, and that's it. Bake animation can be disabled as I don't need any baked animation. I only need to point cache, and that's it.

I already have done this 10 times right now. And I want to skip, basically, I want to skip all the export stuff. This takes some time to export. A point cache can take too long. Potentially-- oh, my video driver has stopped working. Hopefully I don't have to restart my complete computer. Let's see. Normally, we should be fine. OK, just have to reload the scene again. Just one second. It shouldn't take too long.

OK, perfect. Good. Back again. So I have already created every single FBX for every single flag. I can basically select everything, every file in one go. Within VRED I have the possibility,

in case I already have materials prior created in my workflow, I can apply the materials from an asset manager. In this case, I already have a, let's say, a naming convention or something like this for my objects.

And therefore, I already have materials in my asset manager, in my library. And therefore I can just use the objects, the materials in my library. Here in this case, this is a flag. Here you can see, this is a flag, velvet. OK, I already have it. And just have to apply the materials from asset manager and click Import. This could take a while. Let's have a quick look onto the-- oh, by the way, if you're importing stuff--

OK, it's no-- it's good. As you can see, it's importing every FBX. When having a look on the FBX files and the point cache, there is already, within this folder, for every single FBX file a folder where the point cache file is being created. As you can see, just the point cache file for one single flag is 100 megabyte. And with the right mouse button you can get the timeline.

And yes, my flags are already there. OK, this is the flag animation. So the point cache stuff, vertex animation in 3ds Max. Next thing I want to show you is how to do the Bullet/Physics animation from Maya. I've done this in two different ways, just to give you a little bit more overview of how to handle this stuff. Right now I have here a simple Bullet/Physics animation within a so-called bullet set.

So this bullet set will handle all my LEGO bricks as one object. And of course, here's the mentioned dummy object. So the lower the polygon count is, the faster the computation will be. As you can see here, it's crashing right now into the wall. And it's, of course, when I'm going back, I cannot reverse my animation, as it's a physical simulation, so there's no baking on it. It's just the physical simulation thing here right now.

What you have to do here in Maya is the same. You have to create a selection set. And we have to do a point cache, or here it's called a geometry cache. So I'm selecting here the stuff right now, this LEGO wall and go to Edit, Sets-- I'm always using quick selection set. And create a set. Let's say the set is called set LEGO. And it's creating here in the outline you can see the selection set where the LEGO wall is included.

After that we have to do a point cache. This is done with a modifier as well, but you can get it with a-- not in the modifier list. We have here the animation in the Animations menu, under cache. It's a little bit new. In Maya 2016, the complete UI has changed, and sometimes it's a

little bit different. So the place has changed here for the point cache as-- for the geometry cache as well.

So now we're creating the geometry cache. Open up the option box. What I'm mostly doing is in using the MCC and-- the MCCS5 format, and using one file. It really depends on-- you can also use one file per frame. In my case, one file was OK. Normally what I have to experienced right now, when doing big point cache files, and this is definitely much bigger than the flag animation, I will show you afterwards. A point cache file can't be more than two gigabyte.

And after two gigabyte, it's creating a second point cache file as well. So if you have a really huge animation geometry cache files, then potentially it's creating not only one file, it's creating multiple files, as the maximum file size is two gigabyte. What I've done here as well is-- let's play it again, the animation. Here as you can see, my car is crashing into the wall at around 340 frame, 340 or something like this.

So what I have done here, I did here, I started an end. I have created the point cache from frame 340 and not from frame one. As it doesn't make sense to write down all of the vertex animation information from frame one to frame 340 as there will be no change. And then I press, basically, Create. When I'm doing this right now it takes roughly five minutes, or something like this, potentially 10 minutes.

Therefore I have prepared a cached scene file. I will show you the end result right now. With in the cached file, I can obviously see-- I'm starting here from frame 340. I can obviously see here. Everything's been baked. And I can play the animation backwards. This is a simple, easy thing. As soon as I can play the animation backwards, I know everything is baked right now, or put it into a geometry cache file.

You can see this as well in the Attribute Editor. It should be somewhere here, the tab for the shape geometry cache. This is basically, you have like the point cache in 3ds Max. And I can see here the directory, again. And my start frame, 340. Source end 550. So this is the information of the point cache. What I have to do here right now is basically the same.

I have to go to Export Selection, use FBX, Export Selection. Place it. And I have to take care to enable animation, of course. And enable, here, geometry cache files. Enable it and select my selection set. This selection set is called set LEGO wall. So using the set LEGO wall thing, and click on Export. When exporting the stuff, it will also take many minutes as it will go step by step through every frame and validate everything. That will take a while.

I have done this already. So that's it. I have used here, just a side note, which is a little bit confusing, the FBX 2014-2015 right now. Since Maya 2016, the default FBX version is 2014-2015. But since Maya 2016 SP3, the default FBX version has been changed to FBX 2016. VRED itself is normally using-- till SP3 is normally using FBX version 2014 and '15, and not 2016.

So if you're using a newer Maya and an older VRED version, it can be screwed up. You can import something, a node will be imported into VRED, but it's completely empty. You have to take care of it to use the correct FBX version. Since VRED SP4, which is out now, we have changed this. So we can use now the 2016 version of FBX as well. But yeah, you have to take care that you are always on the up to date version. In case not, it can be a little bit tricky. And this is just because of the version when you cannot import anything.

OK, I will skip this. And will import this stuff here into VRED. Just by adding stuff, my LEGO wall, and this is the cached FBX. And this will also take a little bit longer, as the cache file itself is, right now, it's really huge. Let me show you the stuff. Let's have a quick look onto the object. By the way, in case this loading button is-- yeah, the UI is screwed up a little bit with this black window. This is actually a good sign. So then we know VRED is working and everything is good, even if it don't look like.

Let's have a quick look onto the FBX file, to the cache file. As you can see here, my cache file is here now at 3.5 gigabyte. So it's pretty, pretty huge. And this explains why the input takes a little bit longer right now. Potentially, one minute still. Do you have any questions so far?

**AUDIENCE:** Did you say the version of Maya 2016 integrates with VRED 2016 no problem? Or there's an [INAUDIBLE].

**FLORIAN COENEN:** Actually, we don't hav- this is just-- Maya 2016 is normally-- I'm not 100% sure. The latest service pack of Maya 2016 SP2, this is using for default, FBX version 2016. But before, Maya 2016 SP1, SP2, is using as default FBX version 2014-15. So yeah.

**AUDIENCE:** So what works?

**FLORIAN COENEN:** Um, it works at 2014, 2015 for all VRED versions. And since VRED SP4, it works also FBX 2016 is working. All right? It's a little bit confusing, I know. OK, as you can see right now, we have the imported object. My dummy object is crashing into the scene. Everything seems to

be OK. But I want to show you a little bit, a different way, in Maya as well.

Sometimes using point cache, these big point cache files is not the very perfect, professional way to do that. You can do this, also, another way around. Let's do it like that. I'm opening up a new scene file for you. I have, in this new scene file, I have created a bullet wall from out of simple cubes and not from out of LEGO bricks. Here I have the LEGO bricks as well, just every single brick. But I have still the dummy wall.

And this dummy wall is basically-- where is it. So this dummy is being used right now for the calculation of the simulation, which definitely makes sense, as now I only have single, six-sided bricks and not a very complicated object, so I can run my simulations much more faster, and can tweak them much more better.

Afterwards, what I've done is, basically-- where is it-- I have basically done a simple constraint from the legal cubes to the simple cubes to get the translation information back, as you can see. I can show you here. Here is a parent constraint onto the object. And the parent constraint is, yeah, constrained to, obviously, the low poly object, which is a much more better, easier, a more flexible way, more professional way to do this animation.

The big advantage of this is, additionally, I don't have to use any point cache geometry files anymore. I can simply do a bake my animation into the objects. So I have to bake the translation and rotation information from every single cube. And that's it. So all you have to do is then select the complete wall. Go to edit-- where is it. Where is the simulation? Edit keys here. Edit keys, bake simulation.

And then I can bake the complete simulation. Here in this case, it takes a while. Therefore I can select for example here the-- all my channels. Go to hierarchy, below. So as I have only selected the upper parent group node, go to Channels. Tell I just want to bake the animation from channel box. And then just to bake. And that's it.

I have done this already with the baked scene file just in order to save a little bit more time here. Just open up the scene file. And what we can see right now I've selected here this single cube. And of course, you can see here the baked animation from out of the constrained low poly cubes. Yeah, that's basically it.

And then I don't need to use any selection set or in any point cache. I just have to go to Export Selection, use FBX as well, and I can disable the geometry cache right now. And I only have to

go to select animation, and that's it. I can do a bake animation here in the FBX exporter as well. But I'm really familiar with using the baking animation within Maya itself.

In 3ds Max, as far as I know, we don't have the possibility to bake inside of the software. This has to be done from the FBX exporter. OK, that's it. Just go to animation and export the stuff. Which I already have done. I'm selecting that stuff here. Group node. Disabling it. And at my other scene file, LEGO wall.

This is the baked animation. It only has 100 megabyte. And of course, this is definitely an advantage not using the point cache. So if you can get rid of the point cache, I definitely would recommend you to go via constraint or something like this in order to bake the animation before. And then it's, of course, the import is much more faster as well.

Just some seconds and my object is in. OK, here I have my object. And of course, yes, you see here the animation of the wall. Yeah. That's it, basically, for and Bullet/Physics simulation. Now let's go to the car itself. This is what we need next. I'm opening up the car scene.

The car scene is, basically, a simple key frame, classic key frame animation. I think-- I have screwed up my settings. You have always to ensure that you are in the right settings you set up, or [INAUDIBLE]. I will load my scene again. So you have to use [INAUDIBLE] if VRED is using [INAUDIBLE] as well, which makes it much more easier.

Obviously, you can also change-- let's say I have imported my object in the other work space, I can definitely go to my group. It's called Evo. This is the design car. And go to Transform and rotate it around 90 degrees. And that's it. But life is much more easier if you have prepared your scenes with the correct [INAUDIBLE] spaces.

OK, as you can see I have here, potentially this is a clipping plane issue. Just have to select the camera and go to the clipping plane and makes it much more better. What I have done here with the Evo, I have, as I already have, this created dummy object. And I want to use the translation of this dummy object in order to fit it to my physical simulation, to the wall. And therefore, I'm using, basically, a constraint as well, to drive the Evo.

So as you can see, here's a point constraint applied to. So when moving that thing-- no, the other. This group. I'm basically moving my car. You cannot see it as I have here a different camera. Let's go to the perspective. And as you can see, I'm moving right now the dummy object and it's driving the car. What I've done, additionally, this is a pretty good way to animate

a car. At least as soon as the car is driving across a straight line, I have used here the expressions to drive-- to have a correct wheel rotation related to the translation of the car.

I can show you. So when driving my object, it drives, obviously, the wheels in a correct way. So this is a-- just to give you a quick overview-- I have to go to Animation, Expression Editor. And within the Expression Editor I have created an Expression. And the expression is, basically, I need the wheels rotate in y direction, equals the translation of the Evo, divided to a certain factor.

This factor is basically nothing else. Then I have to get a relationship between translation and the rotation. So I have to divide my circumference of the wheel through 360. And this gives me the factor of 5.78. And that's it. And then I have, basically, the correct wheel animation, which is pretty fast forward. And the most flexible way, definitely. Then I don't have to-- then I'm flexible about the speed of the car, the translation itself, and whatnot. So this translation, or this animation, is just played here with two frames, with two key frames, and that's it.

So basically the best way. When it comes to a car animation, which is a bit more complicated, let's say you want to see it in a rough terrain. The wheels are jumping up and down, or you're going to curve to the left or to the right, then it's getting, definitely, much more complicated. There are some good, yeah, what is it, car rigs out there, some plug-ins as well, which you can use for car animations.

In my case, this is no need for doing a complicated rig. And what I have to do right now is I have to export my stuff. But I have to bake it right now. As the animation of my car, the animation of my wheels are driven by expressions and a constraint, and this cannot be stored. And this cannot be translated from VRED. VRED does not know anything about Maya constraints and stuff like this. So therefore, I have to bake my stuff here as well.

Just click on it. And go to Edit Keys Simulation again, and bake all that stuff. And that's it. And then what you have to do then is just go to select the Evo again. So select your object. Go to Export Selection. Just one thing I have forgotten. There is already a camera animation on it. Where is the camera? Here. As you can see-- no, it's switching to the other camera. So this is the camera that I have animated as well.

So the camera is just turning a little bit around the car. And this has to be baked as well. This is not a must. You don't have to bake the camera itself. this is OK like it is. Go to the Evo. And go to Export Selection. In case you have already baked your Evo, the camera don't has to be

baked, as the camera is not using any constraints or something like this. The camera is just using simple key frames.

Simple key frames, so a simple key frame curve can be written from VRED as well. I can show you afterwards. So I only use [INAUDIBLE] to enable the animation and the camera itself. And then export the stuff. And of course, now we are doing [INAUDIBLE]. I'm [INAUDIBLE] the FBX file. I don't have to take care of anything right now. Applied from asset manager makes definitely sense, as I have already my scene materials.

Then I'm importing my file. I can show you now, how to curves are looking like in VRED. So somewhere here should be my car. Yes. And it all-- It looks not bad. So you can see here, I have now applied automatically, while importing, all my materials from out of the scene file. So this is the low polygon object.

But it already has everything applied to it. All the materials are fine. So basically can say, OK, I can run with that. Disable, potentially, my NURBS object. Whoops. I've done a little mistake. As soon as I'm selecting something, I have selected the Evo main group and have edited a file. Then it's been edited under the root node, under the selected node.

Just you can drag and drop this [INAUDIBLE] in Maya as well, or 3ds Max right now. What's happening, I just want to increase it. And this is the animated group. So I can get, basically, rid of my other stuff, my NURBS surfaces. Here, by the way, this is just a shadow plane from a former export. A shadow plane is just a plane which is casting shadows, and that's it.

So basically, right now I could say, OK, I'm done with the import workflows and animation stuff, and can now use VRED for visualization. Another good advantage could be so I don't want to do the visualization with my low polygon car. Therefore, I could basically say, OK, I can transfer right now the animations from my other car, from the low polygon car, onto the NURBS car.

This is basically pretty easy. You just have to go to-- select the nodes, which are animated. You can see these nodes here, the Evo node of my car has a little a. Maybe like here. This a stands for animation. There's an animation on it when I'm selecting this node. I can also see here in the timeline on every single frame there is a key frame. So this is a baked animation.

And what I have to do is I can just go to right mouse button, edit animation. Just a simple trick here, when clicking on this line here above, I can pop out the menu and say copy animations.

And then go to my NURBS surface, NURBS object, which is that. And say here, I already have it. Paste animations. And I have to do this with-- so it's just a little update problem.

So obviously you can see here right now we have two objects at the same place. So my NURBS car has already the translation information, but not the wheels right now. The wheels just have to be transferred separately. And here's, as well, the little a, which tells me the animation is applied to. Then let's go to wire frame, just to show you what is animated. Obviously, the wheels excluded the brakes, as the brake itself should stay still.

OK, wheel front LH. I will do this for these four wheels. This shouldn't take too long. Front LH, copy animations. Paste animations. Front RH, copy, paste. And again for the back RH. Copy. Paste. Last but not least, back LH, copy. Paste. With just a little update. OK, now it's updated. And now everything seems to run fine.

So now I have transferred everything onto my perfect NURBS car. Don't use the low polygons anymore. Basically, when you think about it, you even don't need to export the geometry itself. You can basically select the whole geometry in Maya or in 3ds Max, whatever you want, delete the stuff, and you only have the animation nodes.

You just need to transfer the animation nodes. This is everything. So this would be a file with 15 kilobytes, and that's it, as you don't need-- but having a little bit geometry makes definitely sense for getting a better overview. But basically it's not needed. The next-- the last thing is how to handle the camera. I have here a camera, the camera three. This is basically the camera itself.

Let's say I want disable or delete my low polygon object. What I can see here right now, everything is messed up right now. My camera, I cannot see it anymore. Ah, here is it. I have completely lost my way. A FBX camera has to be treated a little bit differently. When you go to the camera editor, I can see here under viewing, here my camera three is selected, under viewing use parent transformation. This is very, very important.

As you can see, the camera itself, the cameras three, has a parent node, this parent node has an animation on it. So all of the transformation information of the camera three itself is stored onto the parent node. And therefore, I have to say-- I've to tell in the camera editor, use the parent node. And then I'm on the right track. Of course, I cannot turn around my camera anymore. It's a fixed animation. But now I have the correct positions again. And now I can drive that.

OK, just have look onto the camera animation. We have a curve editor here in VRED as well. And as you can see, this is the animation of the camera. So there's no baking on it. I just can simply use the curves, or edit the curves again, like you used to do this the curve editors in 3ds Max and Maya. The animation tools in Max and Maya are a little bit more better than the VRED ones.

But yeah, we have here some good tools for doing quick and easy animations. Just have a look onto the Evo, the car. As you can see here, this is completely baked, every single frame has a key frame on it for the translation. Yeah, so no curves anymore. And editing that is a no go, definitely.

OK, so then what I have to do, or what I can do right now, I can drag and drop this camera out to my other car, to that one. Oops. A little mistake. Evo main group. That's it. OK, so now I'm with the camera onto my NURBS object, and can basically disable the polygon object, or just hide the polygon object with enabling this. And that's basically it.

And now you can do ray tracing, run your animations, and render out a movie. What fret cannot do is render out doing volumetric renderings. So all these particle things, particle stuff, smoke, dust, whatnot. This cannot be done right now in VRED. So this has to be done in a 3ds Max or Maya and fix it in the post. Something like this.

Yeah, that's basically the workflow of using FBX. And I'm basically, as soon as I haven't forgotten anything, done with my presentation. If you have any questions, go for it.

**AUDIENCE:** When you were exporting FBX, why cannot you not select the animation option [INAUDIBLE].

**FLORIAN COENEN:** I don't-- basically I don't need to bake every animation. I only need to bake animations that are done, for example, what I've showed you in Maya, I've done the animation of the car with a constraint. So I have told-- I have done a parent constraint between a dummy object and the car itself. But I need the animation on to the car. And the dummy object is driving the car. Therefore I need to do a baking, as I need to have the information's onto the car itself.

That's it. If you just have done a simple key frame animation onto the car directly, then you don't need to bake it. Then you just have to select animation and that's it. Yeah, in VRED we have the possibility to-- potentially this is important for you as you guys don't know VRED that good. We have the possibility to render out passes. Beauty pass, glossy, whatnot, multiple

passes for doing compositing afterwards.

We have, in VRED, the possibility to render out layers. These layers are not like the layers compared to Maya. It's more a, so-called, visibility flag. You can see this primary visibility off and stuff like this. I'm not really sure what I've done here right now. I can enable it. Let's see what's happening. OK, this is basically a masking layer for-- yeah-- for the Windows.

And then you actually have many possibilities to do post production stuff. Any other questions? Feel free. In case you don't have any questions, you can come back to me. I'm basically today I will be at the exhibition hall in the [INAUDIBLE] booth. If you have any additional questions-- we can try to-- you can send me your email address, email or something like this. You should have the contact within the Autodesk App. So I should be fine.

So that's it. And thank you very much for coming.

[APPLAUSE]

Thank you very much. That was really a big help.