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Interview with Tom Higgins (Unity Technologies) Interview with Marius Sucan (Artist)

- VRAYforC4D Review
- 3 Point Lighting Tutorial
- Volumetric Rendering Part 2
- BodyPaint UV Outline Tutorial
- Minerals made with C4D Tutorial

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VRAYforC4D



Hi there Attackers!

Last month I told you there were some changes coming, and...they came. We have launched our new and improved website. Well, some things were definitely improved, but a few surely weren't. We are very aware that the new forum has some serious bug issues, and are working to fix those. Actually, we will be moving over to a new forum soon. We are very sorry if the new forum's bug issues have caused you any inconvenience. While testing the new forum, we really didn't run in to too many problems. But once our members started moving over, well the bugs came into the light! As I said, we will be moving over to a new forum software soon and this should fix most, if not all, of our current issues.

If you haven't stopped by the new site, feel free to check it out here: <u>www.3dattack.us</u>

As always, if you have any comments, questions and/or feedback, feel free to drop us a line at 3dattack@3dattack.us

Keep on Attacking!

Tavy

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Product Evangelist at Unity Technologies



Thomas: Hi Tom! Why don't you explain to our readers who you are and what exactly you do and have done in the past? Give us a little bit of information about you and your life.

Tom H.: Way back when in college I studied Physics and thought I was on track for a ca-

reer in research science in some way. Somewhere along the way I found myself disenchanted with the career opportunities I had in front of me and a friend offered to help get me hired on in Macromedia's technical support department.

I took him up on that offer and soon found myself providing support for Director, little did I know that

I would result in me working on Director and the Shockwave Player for the next eight years! During my time working at Macromedia and later Adobe, I held a number of jobs, ranging from technical support, to quality assurance testing and on to product management.

Through it all I was able to experience just about every part of releasing a major software title you can imagine. But in the end I came to a point where my own wants and desires were on a different path than Adobe was offering and so I finally left the Director team in the fall of 2006.

Luckily for me I soon found my way into what feels like a dream job working on Unity. Before I had even officially left Adobe, but after I had publicly announced my departure, I was in touch with David Helgason the CEO of Unity Technologies.

I wanted to take a break between jobs which he graciously allowed without pressure, over a period of about three months we talked about what we both might want if I came on board to work on Unity. We quickly found some common ground





and with a huge dose of excitement I joined the team behind Unity in December of 2006. I was hired on as a Product Evangelist, a title I still hold today, with a rather broad scope of responsibilities.

Primarily I'm here to promote the tool to anyone that might want to adopt our technology, whether that means talking with developers, game publishers or portal websites or even schools and universities. Of course we're a small company and that means we all wear many hats so I also help with marketing and sales, public relations and most recently as the planner and organizer behind our first ever Unity user conference, Unite 2007.

Thomas: So you recently joined Unity Technologies. What is it like to work in such an energetic team?

Tom H.: Incredible, and I worry that I'm understating things. It's tough to convey how much fun it is to work on such a cool technology with so many

incredibly smart and creative people. And I say that with the full intent of it applying to everyone at Unity Technologies!

Front to back we have a solid group of folks working on all aspects of Unity and it's very inspiring while also being very challenging. When you look around and see people constantly performing at such a high level it really challenges you to step up your own game, I always want to equal or best their efforts.

But we all do that while supporting each other so at the end of each day I somehow find myself more invigorated and excited than the day before. Look at our team, look at our Unity 2.0 release, how can I not be thrilled to be a part of that?

Thomas: Unity 2.0 has been released. What's the response like so far from the community?

Tom H.: The response so far has been overwhelmingly positive, the work we've done seems to resonate with both existing users and a world





Product Evangelist at Unity Technologies





of potential new users. Naturally the initial buzz was all about the top-tier features, those that offer a high degree of sex appeal. But once folks started digging deeper into the full list of new features and general product updates they grew even more excited about what we've done.

The response has been fantastic and the positive feedback continues to pour in, which of course helps give us all a nice boost of energy after all the hard work we've put into this release.

Thomas: Can you give us a short rundown on the main new features of Unity 2.0?

Tom H.: Sure I can! Here's is an overview of the main features as listed on our website:

Terrain Engine: To support highly detailed and massively big worlds, we bring you a highly optimized terrain engine. Import a heightmap image, or create one yourself, using the built-in brushes and other terrain editing tools. Push, pull, or paint the height of the landscape. Draw and combine multiple terrain textures for hand-built roads or foot-worn wilderness paths. Developers can easily paint trees, bushes and grass across your terrain environment to create scenes that contain thousands of trees and millions of blades of grass, all within a 3MB web player data file.

Video Playback: Unity is a strong media platform on its own, and so in Unity 2.0 games can include video as well as audio. Videos can be played back in 2D or 3D just like audio, and can also be wrapped around objects in the 3D space. And of course you can play back an audio soundtrack synchronously with the video.

DirectX 9 Renderer: Standalone games and the Unity Web Player now take advantage of native DirectX libraries on Windows. Considering that DirectX is much more widely-supported on Windows, this means that your games will run faster and more reliably now.

Networked Multiplayer Games: The easy to use yet highly optimized Networking layer makes it a breeze to create great networked multiplayer games. The Networking Layer is completely based on UDP, provides NAT punchthrough, and has support for sending packets reliably and unreliably. Unity's new Network Views support the two methods of network communication: State Synchronization and Remote Procedure Calls.

Real-Time Dynamic Shadows: Shadows in Unity 2.0 are dynamic, optimized, and allow self-shadowing. All light types can be instructed to cast shadows – Pointlights, Directional lights, and Spotlights. Even alpha-textured objects cast shadows correctly! All New In-Game GUI Tools: Unity's GUI system has undergone a complete overhaul, and in Unity 2.0 we bring you a fast and efficient way of creating GUIs for your games. Not only is the new system robust with dozens of GUI object types – including buttons and text labels – it can also all be skinned.



Product Evangelist at Unity Technologies

Web Player Streaming and Compression Improvements: On the web instant startup times are crucial. To make this easier to achieve, Unity 2.0 features a new streaming Unity Web Player, which organizes assets by level and downloads them in order.

Thus, your game will start immediately after assets in the first level have finished loading. If you have multiple levels, they will finish downloading silently in the background while the game is being played. Additionally, state of the art LZMA compression reduces file size by a solid 30% compared to earlier version, and the game is decompressed on the fly.

Unity Asset Server: The Unity Asset Server is a full version control solution for game assets and scripts. Like everything else in Unity, it's polished and simple to use. Multi-gigabyte projects with thousands of multi-megabyte files are handled with grace. Import settings and other metadata are stored and versioned too.

Updates, commits, and graphical version comparisons are all done inside the Unity editor. When files are modified, their status instantly updates visually. Renaming, moving, and restoring assets is handled elegantly.

Of course there are many more features to be found in Unity 2.0, those that want to see the full list of what's new in this release should go to <u>http://unity3d.com/unity/whats-new/unity-2.0</u> and see just how much we've added to an already incredible tool and playback engine. It's truly an amazing release, give it a look for yourself!

Thomas: Let me ask this, what makes Unity stand out? Everybody knows there are plenty of Game Engines available, even free ones! Why should one go for Unity?

Tom H.: I think it's the fact that we offer a complete package for development and delivery that folks can quickly step into and become productive at a high level. It starts with our elegant and easy to use integrated authoring tool, Unity, as it enables everyone from designers to hard core coders to quickly create high-quality 3D content.







Then it goes even further as we allow them to then easily target their own end-users by publishing either standalone executables or web player content for both Mac OS X and Windows.



Product Evangelist at Unity Technologies



I should also mention the fact that we support easy publishing of Mac OS X Dashboard Widgets, another super cool way of distributing entertainment content. Of course I would be remiss in my duties if I didn't call out the Unity Web Player as another key advantage, it truly does allow and entire new breed of incredible 3D content to be delivered through the browser and that's something that our competitors just can't say.

Thomas: CINEMA 4D and UNITY, what do you think about those two in combination? Anything you would like to see in this regard?

Tom H.: Cinema 4D and Unity make a great combination and I'm not just saying that due to the audience that will read this interview! The truth is that while we offer support for just about every modeling tool out there today, Cinema 4D is among a small set of tools that have a very tight integration loop with Unity. If you're using Unity and Cinema 4D on the same machine it's as simple as saving your source art file into the Unity project folder, there is no need for you to export to an intermediate file format or to maintain a source and exported versions of your assets.







That also brings the benefit that at any time you can use Cinema 4D to modify or update those assets and Unity will notice the change and automatically update the assets within your Unity project. The end result is a huge savings in time and energy, allowing a hyper-efficient workflow that can and will save both developers and artists a lot of headaches.

With that in mind, nothing is perfect and so there is room for improvement, notably the FBX export support offered by Cinema 4D. As such we try to stay in contact with the folks at Maxon to continuously work on and improve our combined efforts so we can keep moving the combined toolset forward.

Thomas: I know for a fact that Unity is an excellent engine for those new to game engines and game creation, but it is also very deep (too deep for my limited knowledge). What kind of advice do you have for beginners wanting to create games using Unity? **Tom H.:** I think that a key piece of advice is for folks to start small and build up from there, doing that allows you to learn the basics before moving on to more advanced topics.

As you might expect Unity is well suited to such a process as it allows new developers to step into the product and use the included assets and scripts as well as those provided by the community to begin making their demos or games right away. Then as time goes on people can develop









and expand their skill set to begin taking on increasingly complex projects. Additionally, both beginning and advanced developers can benefit from working with others as a team.

If you're a talented artist then find skilled programmers to work with as that can help you learn a bit about programming while also allowing you to reach for and achieve more aggressive goals than you could alone. Another key bit of advice for beginners is to leverage the Unity community as much as possible.

We have a great community built around our online forums that is always willing to help beginners, whether that's helping them figure out how to write scripts, to properly optimize artwork and graphics or even to write custom shaders. Therefore anyone using Unity can benefit from the community, use them and then when the time is right, return the favor by offering your own tips, advice or insight. **Thomas:** People often tend to have big ideas for games, but they soon find out that their idea is too big to manage. Seems to be a common problem. What's your advice on that?

Tom H.: I think the answer here is a bit the same as with your previous question. I think it's great that folks dream big, without them we wouldn't ever see great leaps forward for it's often the brave soul that goes against traditional wisdom that shows us new ways to go about things.

But in saying that people definitely need to be realistic, making a massive next generation MMO game is just not something within reach of an individual or even a small team.

Therefore I can only encourage folks to pick realistic targets to work on in the short-term as that's the best way to build your own skills and hopefully cultivate a solid team of people to work with. Another tip is to focus your efforts where you have



the greatest chances for success, and in the casual games market that's definitely on the web with online content, save that heavy-weight desktop game idea for later in your career when you're better prepared for that sort of challenge. But as I said, never throw out those big dreams, keep a hold on them and as you build and grow you may find that you become capable of achieving them, just don't expect to get there right away.

Thomas: Is it really necessary to create a game Game Design Document? Is it helpful? What's the purpose of it?

Tom H.: Is it necessary in all cases? Certainly not. Is it a good practice in general? You bet. Game design documents help you develop a cohesive plan and properly frame your game idea at a high-level, this is especially important once you start working as part of a team. Crafting and utilizing such a document will help you ensure that your game concept and overall vision is properly described and outlined both for yourself and anyone you work with, and that's a key element in avoiding unnecessary churn and time wasting as you proceed through the development process. Before beginning any task you should know what your end goal is, whether that's planting a garden, painting a room in your house or developing a game of some sort, game design documents help you clearly explain the desired result you're working towards so it's definitely advisable to use them.

Thomas: Unity can create web browser based games. What's your view on that? How lucrative is it?

Tom H.: As most folks have already heard the casual game market is undergoing massive expansion and seems set to continue doing so for the months and years to come. A huge part of that growth is coming from the explosion of online game content being offered, whether that's through major portal websites, as advergaming to promote specific products or as educational game





content. Unity's ability to let developers create online browser-based games definitely offers a key advantage to all that tap into those capabilities. I'm certainly not here to say that creating online browser-based games is easy money as it's a highly competitive market. But I can say that both critical and financial success via online games is well within reach of the motivated individual or small team of developers and in that sense it can in fact prove to be very lucrative indeed.

P I P

Thomas: Do you think it matters what kind of 3D Software people use to create their game models/ assets?

Tom H.: In a general sense, no I don't think it's the tool that's important so much as the output is important. Having said that there are some tools, including Cinema 4D, that have much tighter integration with Unity than others so in that sense you might save yourself some time and effort by choosing one application over the other. But beyond that it's really about finding which modeling

application suits your tastes and workflow the best. That's a big part of Unity's selling factor, it doesn't box you in to any specific tool choices, instead it lets you choose what works best for you.

Thomas: Speaking of 3D Software, some are expensive while others are rather inexpensive. Unity Indie is rather inexpensive. What's the downside?

Tom H.: I'd like to think that there's no downside to buying Unity Indie, it's priced significantly lower than Unity Pro as a way of helping students, hobbyists and beginning indie developers step into the tool without breaking the bank.

Having said that I sense that this question was leading me towards the functional differences between Unity Indie and Unity Pro as they aren't identical in terms of what you can do. There are a few key high-end features not supported in Unity Indie, the Pro-only features include the use of C/



C++ plugins, streaming video support, render-totexture effects and a few others. So if you're asking me what's the downside to Unity Indie it's that you don't yet have access to the full power and capability of our run-time engine, but frankly 90+% of what you see in commercial content today is quite possible with our Indie tool. It's worth noting that Unity Indie is inexpensive, we provide an upgrade path to Unity Pro and your Indieauthored projects will seamlessly update when you buy Unity Pro to being adding new features.

Thomas: Rumor has it that you guys are in contact with Nintendo. Can you explain?

Tom H.: At the San Francisco Game Developer's Conference earlier this year we announced that we're going to add support for Nintendo Wii content development to Unity. It's an exciting new move for us as it will let Unity developers reach beyond the Mac/Windows desktop and on to the console market. It's still very much a work in progress but we're very focused on making it happen, anyone interested in hearing more about this effort can get in touch with me and I'd be happy to share additional details as time goes on. Suffice it to say it's an exciting new venture for all of us at Unity Technologies.

Thomas: Is there a possibility for Unity users to create games for xBox 360 or Playstation 3 in the future?

Tom H.: Is there a possibility for other consoles and devices (apart from the Nintendo Wii)? Sure, you bet. Is that a firm commitment at this point? No, not quite. We are very interested in expanding the range of platforms and devices Unity allows you to target but we must do so in a way that makes sense for us and our customers.

For now we're making our first move off the traditional desktop environment by targeting the Nintendo Wii, but that won't be our last move so as time goes on look for further efforts to include other consoles, devices and platforms.

Thomas: Where do you see the future of Unity? Where are you guys heading?





Interview with Tom Higgins Product Evangelist at Unity Technologies

Tom H.: Our vision is to make Unity the game development tool of choice, whether you're targeting the web, the desktop or even consoles and devices. That's a very broad target and one that will of course take some time to reach, but it's one that best answers the "where are we heading?" question.

This is a rapidly changing industry though and so we're not interested in boxing ourselves in by limiting our future vision in any way, therefore our vision also involves staying flexible in order to adapt to new market forces in the casual and serious games industry. Only time will tell exactly where we end up.

Thomas: My last question will be the most asked question since the existence of Unity! When will we see a Windows port of Unity!?

Tom H.: You're spot on with the fact that this is the most asked question we hear from folks. The truth is that as of today I cannot give a firm date or time window when you might expect to see a Windows version of the Unity IDE. With the Unity 2.0 release we really wanted to focus on the core run-time capabilities and the features it offers and we think we've done a good job with that.

Now that we're clear of that effort we're beginning to carefully map out what's next and a big part of that is porting the authoring tool to Windows. We definitely recognize that doing this work is a key part of our long-term growth and as such it's a high priority item, but even if we started that in earnest today it would still be 12-18 months before we'd have something ready to release. So I can safely say it's on our long-term roadmap, but it's not something you'll see in the near future.

Thomas: Thanks for your time Tom! Any last words of wisdom you want to share with us?

Tom H.: You're quite welcome Tom, I really appreciate having an opportunity to share my thoughts here with you and your readers. I think that the last bit of wisdom or advice I'd like to share is just for folks to get involved with what they do, find that part of the industry that matches your passion. If you can find a way to make your



passion and love your daily job then you're far ahead of most people in this world. Luckily for us games and 3D arts are fun and exciting, and what's more is that they are field that are offering incredible growth and job opportunities, so reach out here and go for it! Make games, make art and have fun!

Thanks again for the opportunity to speak with you and your readers. I hope folks are sufficiently excited about Unity to give us a look if they haven't already. Please stop by <u>http://unity3d.com</u> and check us out!



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The Importance Of "Light"



By Thomas Pasieka

Over the years I have seen thousands of images on the web, magazines and galleries. Most images that appear in a magazine or gallery are usually in there for a reason, they look good. Some are more than good, more like mind blowing making your jaw drop.

Now, what makes an image stand out from the crowd? Well for one thing, the idea/story behind an image. Sometimes it's not a story though, but rather a product or even a architectural scene that you are looking at.

No matter what it is, half of the "great" impression is created by making use of proper "Lighting". I have seen a lot of people that are actually quite decent modelers, but their lighting skills, or should I say, the "time" they spend on lighting is insufficient. They tend to spend all their time on making the model look proper and in the end they are too tired to create a decent light rig.



Let's have a look at the following example. Have a look at the head model, (screenshot above), for instance. The model itself is looking quite alright to me. However, there is only one light in the scene illuminating the head. What we get is a pretty dark scene that looks like it's coming out of a dungeon. We don't even see all of the head's parts. The right cheek is totally covered in darkness. This would not be a very attractive rendering if I were to render it out as is. The Background is pure black as well! How much more boring can it get? Seriously, this is what I see posted on many many forums out there. People don't take their time to light a scene or object/model properly.

So what I get to look at many times is a model shrouded in darkness by 50%. Doesn't make for a good impression and keeps my blood pressure rather low.

Since I've started teaching online (See our website for more information on 1 on 1 training online) I have had quite a few people ask me to help them with their "Lighting".

What I usually tell people is to start thinking like a director or photographer. You have to develop an eye for detail, light colors, distance, scale, proportions and so on. My tip is to study images you like and see how the artist set up the scene. Are you looking onto the object or up to the object? That alone can make a big difference. Where does the main light come in from? Is there additional light in the scene? Are there any bright colors? Create yourself a set of questions to reproduce what you are looking at.

You don't become a professional photographer or director over night. Neither will you become a professional 3D Artist over night, so be patient with yourself. Like mentioned earlier, you will have to develop an "eye" for such things. Good lighting is a matter of experience and following some rules. Speaking of Rules, well maybe we should rather call it "Guidelines".

When it come to lighting one of the best guidelines to follow is 3 Point Lighting. What is 3 Point Lighting you may ask? Well let's have a closer look at that. On the next page we have two screenshots of the same scene. I am using a top perspective to make things a little clearer.

The first screenshot is showing the set up as you would see it if you would be setting up your scene according to mine or according to the "Guideline". I marked the second screenshot with different colors. You can clearly see that I am using a 3





The Importance Of "Light"

By Thomas Pasieka





Point Light Rig. Those 3 Lights are called "Key Light, Fill Light and Back Light".

The Key Light should be your strongest light source in the scene. It should also be the one casting the shadow.

The Fill Light is horizontally in line with the Key light (or close to) and uses only 50% (or less) of the Key Light's brightness value.

The Back Light is set behind the main object and accentuates the edges of the object from behind. Usually you want the back light to cast no brighter than 20-25% brightness.

So far so good, we have that down. Another important factor is the stage area. In this case I am making use of a technique used in photography again by creating a backdrop object. Just like the 3 Point lighting technique, it is a photographers "first" to learn.

The backdrop is nothing more than a spline in an ExtrudeNURB object. This backdrop object will serve us as the floor/stage element.

Photographers often use reflective objects (sometimes just a piece of white cardboard or cardboard with aluminum foil) to get indirect lighting on certain areas on the main object. In the 3D world you don't "have to" recreate this behavior. You could simply place more lights with little value into the scene.

However, 3 lights are usually enough to light an object properly. There is one small little thing we haven't paid attention to yet. In the real world light bounces from objects like walls, reflective objects and whatnot. So, what can we do to emulate that? Turn on Global Illumination! Right! You could also create a "Globe" around your scene. In my example I am using a "Sphere" as "Light Dome" with a gradient color applied to it.

I also changed every lights RGB values "slightly" to mimic realistic behavior once again (remember the photographers/directors approach). Let's render the scene with our 3 Lights and GI activated.



The Importance Of "Light"



By Thomas Pasieka

This looks very good to me. Big difference when comparing it to the shot in the beginning I would say! We can finally see the head's shape and nothing is left in the dark. Proper lighting also helps to find issues related to the model itself. Inverted normals are easily detected at this stage or an unclean mesh will show it's nature now.

Alright! You are probably wondering why I have another light in the scene, but have it deactivated right now. This one is called "Background Light". What does it do? Well I am pointing the light directly onto the WALL (Backdrop) in this case. Since I have GI (Global Illumination) activated it will bounce of the wall and therefore act like it's a "soft" light. I also gave it some more "color" by changing the RGB values. Let's render it with the Background Light active.



Have a good look at the rendering above. You will notice that we get a slight red touch on the right side of the face. This is simply because we activated the Background Light. The backdrop object, of course, gets a touch of red as well (naturally) since the light is aimed towards it.

So what did we learn here? The most important thing we learned is to take your time when you light your scene. It makes 50% of the overall impression. Secondly, we learned that it takes time (years) to develop an eye like a professional photographer has. However, we also learned that we can achieve awesome results by just using 3 lights in combination with GI! It's best to open up the scene for yourself and see how I've set up everything. Playing with someone else's file is a good way to learn.

The next pages will clearly show how big the difference can be compared to 1 light (see image in the very beginning).

I also rendered a little animation of the head spinning and changing the color value of the background light so you can see how it affects the overall lighting.

I hope you see the light now :)

Thomas



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The Importance Of "Light" By Thomas Pasieka





The Importance Of "Light" By Thomas Pasieka



CINEVIEW



Cineview is an advanced preview tool and assistant for CINEMA 4D.

Cineview has a wide range of optimizations and options that you can set to ensure that you get the fastest previews possible. You have total control over the size and quality of the preview image, plus the ability to preview from any camera in your scene.

Cineview can automatically preview your scene whenever changes are made or, if you prefer, it will only preview the scene when you tell it to, allowing you to continue working without worrying about interrupting the preview. Information can be stamped directly onto the Cineview previews, such as elapsed time, document name, time and date, custom text (your company name for example) and a watermark image.

Cineview also supports previewing regions of your scene with the same optimizations and control of the normal preview. The region tool allows you to examine even the smallest details of your scene. This makes it an ideal tool for print, video, and shader work.

In addition to all of the fore-mentioned, Cineview manages an internal render history and allows you to compare images from its history or images loaded directly from disc. This allows you to see subtle differences between renders. Cineview is more than just a preview tool; it's a personal assistant for all CINEMA 4D users.

For CINEMA 4D versions 9.6 and higher. (Win32, Win64, OSX PPC and OSX UB)



CINEVIEW - SAVE TIME - CREATE FASTER



Here we are again in our volumetric adventures. I hope you enjoyed last months article and managed to create some nice volumetric renders. I also hope you understood the concept well enough to be able to use this technique whenever it is suitable.

You may be inquiring to yourself what else can be said about volumetric renderings? Well, there are situations where the technique I presented last month cannot be used. One of those situations is when you need to texture - volumetrically, of course - an object that is not of a cubic or spherical shape, a teapot for example.

Yes, yes, I know this example would fit more in a 3D Studio tutorial, but the Utah (or Newell) Teapot is an excellent object to demonstrate almost everything in 3D:

http://en.wikipedia.org/wiki/Utah teapot

So, creating a solid-cube (using the method presented in the first part of this tutorial), and placing it, along with the teapot, inside a Boolean set to A Intersect B, will produce something like this:

Even using a "solid-sphere", the results are not much better:



What you need is a method that can work with any arbitrary object. So, like most things in life, to deal with more complex situations, we simplify. Instead of using cubes or spheres, we will use simple planes. Those planes will slice the objects along a specific axis. Something like this:







The axis, whose bisecting planes are parallel to, is defined by you of course. But I would recommend that you choose the axis that is more perpendicular to the camera line of vision. This way, the bisecting planes will roughly face the camera. The results are guite good, as you can see:



And, if you have enough RAM, time and patience, you can use LOTS of planes and get even better results:



So, what is the best way to achieve this result? Since we need lots of parallel planes, a semiautomatic way to distribute them would be nice. If you have followed my C.O.F.F.E.E. lessons in this magazine (or bought my C.O.F.F.E.E. book), you will have a tag plug-in named InBetweener that does exactly what we need. If you don't have that plug-in, fear not, just create a Null and add to it a C.O.F.F.E.E. tag. Type the following code in the Expression editor of the C.O.F.F.E.E. tag:

main(doc,op)

{ var num_obj,current; var pos,rot,scl,pos1,pos2,rot1,rot2,scl1,scl2; var f,scal,multip;

current=op->GetDown(); num_obj=0;

while(current)

num_obj++;
pos2=current->GetPosition();
rot2=current->GetRotation();
scl2=current->GetScale();
current=current->GetNext();
}

if(num_obj<3) return;

scal=1.0/(num_obj-1); current=op->GetDown(); pos1=current->GetPosition(); rot1=current->GetRotation(); scl1=current->GetScale(); current=current->GetNext();

for(f=1;f<num_obj-1;f++)</pre>

i multip=f*scal;
c u r r e n t >SetPosition(Mix(pos1,pos2,multip));
current->SetRotation(Mix(rot1,rot2,multip));
current->SetScale(Mix(scl1,scl2,multip));

```
current=current->GetNext();
```

}

ł

If all the code was typed correctly (hit the Compile button in the Expression manager to check for errors), from now on, you have a simplified InBetweener expression attached to that Null. How does it work? Well, you need to place, at least





three objects inside the Null. As you move/rotate/ scale the first and last objects inside the Null, all the ones in between will adjust themselves in an orderly fashion to "blend" between those two.

In our case, we need to place several planes inside the Null. Add as many planes as you think you need and they all are arranged neatly between the first and last one. Don't be afraid to add or remove planes, as you feel needed because, as long as there are at least three planes inside the Null, all the rearranging will be done automatically.

As soon as you have your "block" of planes set, make sure it fully envelops the shape you want to render as volumetric.

Now, create a Boolean object and place inside it, the shape you want to render as volumetric and the Null containing the planes. Set the Type of the Boolean to A intersect B and wait. The waiting period can be very long, depending on the Quality parameter of the Boolean, the number of planes, the number of subdivisions of those planes and the complexity of the geometry of the shape you want to render as volumetric.

Turn off the High Quality parameter of the Boolean because you want to see the results of the Boolean during your lifetime and also, sometimes, the High Quality mode creates "errors". Weird isn't it? But believe me, turning it off, even if it creates uglier triangulation, will produce a faster and better result.

Also, you should set the subdivisions of the planes to a low value but not as low as to create a nightmare of triangulation. To experiment, create just a few planes (around 10) and adjust the subdivisions of those planes while watching for the geometry resulting from the Boolean.

Finally, assign the volumetric material to the Boolean, paying attention to the Projection mode, like I told you in last month's article, and render away.

Once again, be patient. The Boolean has to be calculated again for a render to the Picture Viewer (if you render the viewport, the Boolean was already calculated) and the volumetric textures are usually slow to render too. So, please, be VERY patient.

One way to speed things is to convert the Boolean to a polygonal object, once you are satisfied with the result. Maybe it is a good idea to keep the live Boolean safe, in a different document, just in case.

Oh, don't forget to set the Ray Depth and Shadow Depth, in the Render Settings/Options, accordingly.

Also, use lights and shadows to emphasize the volumetry of your object.

Now that you know how to create volumetric objects, there is one final thing that I need to tell you. If you try to "travel" inside then, some problems may occur. And why would I want to "travel" inside a volumetric object? - you may ask. A good example would be if you wanted to create a volume of clouds and wanted to "fly" straight through them.

To create a volume of clouds you could easily use the concentrical spheres method and create a nice "cloud" texture. You would not even need many spheres to achieve a good result. The problem occurs when you "fly" through the clouds/ spheres and your camera passes by the surface of a sphere. In frame X you are seeing a cloud because the surface of a sphere is right in front of you and then, in frame X+1 you don't see it anymore because the surface of the sphere is now behind you, When you play the animation, the clouds pop out of existence in a very unnatural way.

To minimize (or completely eradicate) this effect, you need to add a little something to the Alpha channel. You need to have a Layer shader in the Alpha channel, if you haven't already. So, if you already have a Layer shader (accommodating your set of shaders that produce a volumetric result) in there, simply enter the Layer shader. If you only have a shader in there, probably a Noise shader, choose Layer from the shader's list, to place that shader inside a Layer.





Don't forget that, if you have a Layer shader in the Alpha channel, you need to turn off Image Alpha.

Now, inside the Layer shader, create a new folder and make sure it is on top of the list. Inside the folder, create a new Proximal shader and click its thumbnail to edit it. Drag your camera object into the Objects list. Set it to Linear (in the Function parameter) and the Blend Mode to Add. In the End Distance, set a value that is the number of units at which the volumetric texture mapped to the surfaces should start to fade.

The number is set as a percentage but it is not interpreted as such. So, if you input 70% that means, in fact, 70 units (meters, centimeters, inches, whatever is defined in the Preferences).

Basic Shader
Shader Properties
Objects Camera
◦ Exclude Parent
◦ Include Subobjects 🗍
• Use Vertices
• Use Edges
Polygon Radius
• Function
• Blend Mode Add
• Start Distance 0% +
• End Distance 70 % +
• Intensity 100 % +

The problem is that the Proximal shader produces a lighter result when objects get nearer and we want it to return a darker result, so that the Alpha becomes more transparent.

So, on top of the Proximal shader (but still inside the folder), create a Colorize effect, set to ramp from white (on the left) to black (on the right). Now, set the mode of the folder to Multiply.

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Colorize Input Luminance 👻	Cycle
	÷
Proximal Normal 🔹 100	* +
Noise Normal 100	% ÷

This setup will create a dark "blob" in the Alpha channel of the volumetric material as the camera gets nearer the surfaces. So, the volumetric material will fade as it gets nearer to the camera.

You should set the End Distance to a large value if you want a very slow fade and to a smaller value if you want a fast fade.

As a final touch, to assure that the edges of the spheres are not too hard, ruining the result, add a Fresnel shader to the Layer set. You can place it on top or bellow the folder that contains the Proximal shader. Set its transfer mode to Multiply and invert its ramp, making it go from black (at the left) to white (to the right).

▶ 👁 Folder 🔹	Multiply -	100 % \$	
Fresnel	Multiply -	100 % \$	
👁 Noise	Normal -	100 % \$	

That's it! You can check out the examples of a journey through volumetric clouds inside the Goodies folder.

As usual, if you have any doubts or comments, feel free to contact me at: <u>rui_mac@ruimac.com</u>

Happy volumetric attacking! :-)

Rui



BodyPaint to Photoshop and Back Again

By Thomas Pasieka

Let me guess. You just finished modeling a fantastic piece in CINEMA 4D. You even somehow managed to do a proper UV layout. So now it's time to texture but you feel uncomfortable in Bodypaint and you would rather like to use Photoshop or Painter.

Over the last years I have seen this scenario posted all over the web at least a hundred times. Well, for one thing most people are not familiar with the process of UV mapping and secondly they are not familiar with Bodypaints functions.

I wrote beginner Bodypaint tutorials in the past so please check for back issues or contact me directly for 1 on 1 video training in this direction.

Let's assume you finished this piece of furniture like in the image below. Looks pretty pathetic without textures at the moment. Actually it could



be a anything at this moment. Texturing is part of being a 3D Artist so the sooner you get into understanding the importance of proper uv mapping the better.

Ok, the model is done. We need to layout our UV's now. The model has a front and back (as most models do) so it is up to you to determine how much UV space certain UV's get. In this case I could even delete the backface of the model and thus get rif of the unecessary UV's. However, I will leave them for now. Important is that you understand the steps. So let's break the process down here...

1. Make sure you are really done modeling. Changes to your object at a later stage will affect your UV's.

2. Switch your layout to "Bodypaint UV Edit"



3. Drag your object from the Object Manager onto the UV Space on the right (the grey area).

4. Layout the UV's as desired.



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By Thomas Pasieka

5. Press the icon for the BP Setup Wizard. Activate/deactivate the necessary object(s). In this case just one object.



6. Step two in the process is to deactivate "Recalculate UV's" since we already did that process by hand.



8. Since we want to "outline" our UV's so we can paint on our texture later in Photoshop we need to make sure our Brush is not too thick while outlining the UV's. Activate the brush and click on the "Attributes" tab and change it's brush "Size" to 1 or 2 Pixel.



7. For step three in the process we simply change the texture size to 1024x1024 or whatever you think is necessary. This is pretty much up to you. I only have the color channel active as you can tell by looking on the left. You can of course activate other channels as well and BP will generate the textures once you click "Finish".





BodyPaint to Photoshop and Back Again

By Thomas Pasieka

9. Time to select all UV's. Make sure you have the Live selection tool and UV Polygon Edit tool active. Select all UV's.



10. Time to outline the UV's. Go into the main top menu called "Layer" and choose "Outline Polygons". Notice how the UV's on the right get outlined with a 1 or 2 pixel wide white line.



web-browser to be the browser you want to surf the web with).

12. Now I can finally do all my work in Photoshop. I can use the outlined 1024x1024 image to clearly distinct between the different faces (UV's). Do whatever you need to do to make it pretty now. You can save your finished texture as TIF, PNG,



11. Save your progress. This will also save the texture you created. You could now either locate your texture on your HD or select "Edit Image" which in my case opens up Photoshop. (If your prefered image editing software doesn't load up then you will have to change that globally since this is a OS depend setting just like you set a



Photoshop or whatever and reload this later into the C4D file. Just remember to keep the layer to an acceptable number (more layers will simply raise the size of the texture in Megabyte).





By Thomas Pasieka

13. Done! Simply save your texture and switch back to Cinema 4D.

File Edit Image Layer Select Filter View

Mat Color2.tif @ 50% (RGB/

Well here is the finished Drawer. Modeled in Cinema 4D. UV's are done with BP UV Edit. Outline, and then textured in Photoshop. Saved, and brought back into Cinema 4D.

Thomas Pasieka

14. Double click on your texture to open the material editor. In the Color channel click on "Texture" and then "Reload Image". This will update the texture properly.



This is it! You've done it. Wasn't all that hard was it? Some people, me included prefer to work in Photoshop for all texture matters. I am just used to work with Photoshop and besides I have more options of course. Bodypaint is an excellent piece of software and I often use it in combination.

> ³⁰ TUTORIAL





By Kevin Capizzi

Overview

If you're anything like me when I was a kid, the second you got your hands on a new toy, you tear into the packaging, shredding its box into bits of torn cardboard, toss away the documentation, load in the batteries and just have at it.

Metaphorically, this is what it felt like when I installed Vray in CINEMA 4D 10.5 on my 8-Core Mac Pro. Whether it turns out to be the toy of your dreams, or not, is another matter entirely. It just had been so long that I had to find workarounds and unbearably long render times using Cinema's own Advanced Renderer to achieve amazing photorealism, that I almost forgot how long it had been that I was pining for another, more elegant (and hopefully faster) solution.

How much faith I had unwittingly put into Vray-ForC4D to be the answer to my prayers didn't strike me until I finally was able to activate the VrayBridge under the Effects tab in the Render Settings.

In reality I was staring down the barrel of the unknown. To get it even working at all, I had to grab what little documentation there was on it at this point to at least get me started. I feared I was in over my head already.

Gone were the familiar settings and options of AR, and what I was now looking at were options like Adaptive DRC, Irradiance Maps and Light Caches. It hit me that I had to unlearn what I had known about rendering, and retrain my brain into a new way of attacking photorealism.

Integration

One of the things that drew me to CINEMA 4D in the first place (rather than it's competitors) was the one-stop-shop philosophy MAXON builds into the software. They want C4D to do everything and do it all well, and for the most part they've achieved just that.

They've kept the software and tools modular, yet well integrated. All its features play nice with each another, or even enhance one another. So the



thought of going elsewhere for another Render Engine always put me off. I liked that I could get good results from AR alone. I longed for an all-inone solution; and that's where Vray delivers amazingly well.

Keeping with MAXON's wonderful shader system, almost all of the effects and channels we know and love are still there but cleverly integrated with the new Vray Material Shader. Everything from Fresnel, SSS, Noise, and even third party shader plugins like Enhance 3D.

It didn't take me long to hash out how to get these stalwarts of shader-building up and running within the Vray Material. There's even a one step menu selection to convert all your native C4D materials, into Vray ones, which in most cases works really well, with very little tweaking involved.

Another thing is that you still use C4D lights and cameras. For the lights, you do need to add a Vray Light Tag (where the tag has light settings that override the C4D ones we're used to), but it's



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By Kevin Capizzi

a simple thing, and not too hard to figure out where most of the same light options you would find in a C4D light is within Vray's light options.

But there's a lot more here than meets the eye. Spot lights and Omni lights work very real-world, and use the Inverse Square method of fall-off.

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While Area lights and shadows are there by default and don't seem to add much to render times. There's even a light-dome setting for hard and fast GI illumination.

You can still use a normal C4D camera without a Vray camera tag, but the tag does offer some interesting new features and effects that you couldn't get otherwise.

Results

Good results is what Vray is really about. Taking on a more real-world approach to the physics involved in lighting a scene, Cinema users now have impeccable rendering power at their fingertips. This engine isn't about stylization, but about photorealism. It's key to keep that in mind. I think most C4D users are always looking for ways to cheat their scenes into creating visuals that look a certain way, Vray almost takes the opposite approach. There's little cheating when it comes to Vray, and this can be a good or bad thing depending on how you plan on using it.

While amazing, clean, flicker-free looking GI is now possible, there's no settings for global Ambient Occlusion, or tinted shadows (although, I hear that's on the way). What Vray is trying to get you to do is be disciplined in how you go about lighting your scene to achieve very photorealistic visuals. It's a fine balance.

While I can certainly understand the nobility behind this approach in designing a render engine that gives you amazing, real-world optic phenomenon (such as fast and true Depth of Field, Motion Blur, and Blurry Reflections) which it excels at so well, there are times the artist needs to make a fast and easy cheat, that would otherwise force the artist to take the long way around, just because it's more "natural". The beauty in being a CG artist, is sometimes being able to create worlds that are not natural.

If most of your scenes depend a lot on making these unnatural cheats (like AO, or making some objects invisible to a light, or only use an object as a shadow caster), I think you might find yourself a little disappointed.

The native composite tags aren't seen or recognized by Vray, nor is Light Exclusion or Inclusion for objects. Vray does include a compositing tag of its own, but I've found it to be woefully inadequate when compared to its native counterpart.

And while there might be work arounds for most, I haven't had the proper time yet to really dig in, and see what is ultimately doable and what you might have to live without. Suffice it to say, I wouldn't hold your breath if you depend on a lot of these rendering techniques.

Otherwise, rejoice! I have found, in the long run, that I still find ways to make Vray work for me. Even if it takes a little more time, or a little more effort in understanding in the scene setup, usually





By Kevin Capizzi

the results are just so stunning, and true to life, that it truly feels like you're taking a step backward when you go back to Cinema's Advanced Render.

Features

The things a lot of us have been pining for for so long are finally here and within reach (if you can get over the \$1000+ price tag). Again, this engine is about simulating true optical phenomenon, and in keeping with that philosophy, there are plenty of features and technologies that the developers of Vray kept in mind to achieve that. Most times I've been able to get away with only activating two, but knowing I can have up to 5 means the ability to create some really complex materials. Each Specular Layer has an overall Brightness and Color, a Transparency Color and

Amount, and a Hilight and Reflection Glossiness. If you set these glossiness levels high, you get a sharply reflective surface; lower and you have something akin to brushed metal, with fast blurry reflections and all. But to achieve some amazing effects, it's all about how you layer these seculars, using a high gloss (but no reflection) on top of a blurry highlight and reflection, you can create lacquered finishes quite easily. Anyway, the depth

Vray Materials: Setting up materials for Vray is just as easy as using a native C4D material. It uses a layering method similar to that found in photoshop, and really not too different than

It consists of an overall Mask or Alpha layer called the Material Weight. Bump, Reflection and Luminosity layers; Five, that's right, Five Specular Layers;

C4D's own method.

Two Diffuse Layers which is about the same as C4D's Color Channel and finally a

Refraction Layer which is where one would set not only a surface's refraction but it's volume (which is great for simulating real world tinted glasses and crystal) and sub-surface-scattering, among others.

The Idea is that each of these layers affect the ones below it, and beyond the top-most Material Weight, which works just like the Alpha Channel in a native material, each layer can have it's own transparency settings. The real magic for me however is all in the Specular Layers. and power of the Vray material editor is far beyond the scope of this First Glance. Suffice it to say, It's one of the most well thought out and truly enjoyable aspects of Vray-ForC4D.

True Depth of Field: This has always been something that had to be faked before, and usually with mediocreat-best results, unless you had the 3rd Party plugin zBlur, but even then, it was a post effect, and could only be pushed so far before unwanted artifacts

showed up, or you just weren't getting that true optical realism of photographic Depth of Field.

Vray's solution is all done in-render. It's computed as it goes, and I've found with even medium-level sampling, produced amazing results. It's integrated with C4D's camera object, so it's like being at home when setting it up. You just need to turn it on (as with most of these features) in the Vray-Bridge dialog. Easy as pie.



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Motion Blurring: The documentation and it's implementation within the version given to me for review was incomplete, so I haven't had much luck exploring this feature yet, but I believe the idea here to be the same as True DOF: True Motion Blur, that can be calculated without having to render several sub-frames, thereby keeping render times way down, and hopefully making strobing a thing of the past.

Indirect Illumination (GI): The cool thing about the GI in Vray, is it's very easy to set up and get good, if not great results right away. It uses primary and secondary bounces where both, or only the primary can be used if so wished.

There are also several different calculation and caching methods to choose from, such as Brute Force (which it seems behaves similarly to Stochastic Radiosity) and Irradiance Maps.

You're still at the mercy of having to jack these settings up for the sake of pristine illumination, but I find the most of the presets it comes with to be fast and adequate. To really get the most out of how little you can get away with, you have to really use it in conjunction with the next feature...

Superior AntiAliasing: There are 3 different methods. Fixed, which sub-samples each pixel whether or not the complexity surrounding it is simple (like a white field), or high in detail and complexity. I can't think of a time where you'd really want to use Fixed, as it always seems to create outrageous render times when compared to the much superior, adaptive samplers like Adaptive DMC and Adaptive Subdivision.

Which one of these you end up using, will entirely depend on the needs of your scene. Lately, I've actually been finding myself use the Adaptive Subdivision more than anything, as I can really reduce noise, and I like how it handles the end result.

I do notice specular differences when I use one or the other, and I tend towards what Adaptive Subdivision gives me. All in all, antialiasing is the crux of getting an awesome render, and you have more than enough to work with and tweak until you get maximum results with minimum render times.

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Displacement: Similar to sub-polygon displacement in C4D, Vray offers a tag that can be placed on an object, then using a UV map within this special tag, you can control an objects surface displacement. I found this method of implementation more tedious than C4D's native approach, and less flexible.

I haven't had the time to compare render speeds between the two, but when I was using Vray Displacement in my own scenes, I noticed the render times went up substantially. I'm sure the secret to good render times is all in the tweaking, as usual. Still, it gives beautiful results once set up properly, as it uses micro-poly displacement.

Not sure if there is a difference here between subpoly and micro-poly, but there is no need for subdivision at all. Simply add the tag to any polygonal object, and the results are as smooth as can be.

Caustics: Vray has it all. Yet again, the documentation I was given for review was incomplete in this area, but from what I could tell, it seems very similar in approach to how AR's native caustic engine works. It emits virtual photons, hike up the



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By Kevin Capizzi

energy, and you have some complicated, projected refractions.

Physical Camera: Adding this object tag to a camera will give the native C4D camera some very real-world behaviors, such as lens formats (Fish-Eye, Cylindrical-Ortho, etc.); Bokeh Effects, and exposure settings such as Shutter Speed and Film ISO settings, which can all be animated for some really nice effects and lighting situations that just wouldn't be possible otherwise.

Final Thoughts

VrayForC4D is certainly a great start, and more than usable as an alternative rendering environment for C4D. It's wonderful to have it all integrated into C4D, making it feel as much a part of CINEMA as Hair or MoGraph (although getting Vray to play nice with Hair is something of a chore, but I'm hoping for full support on this in the future).

Is it a complete replacement for AR? Not yet, but I wouldn't be surprised if by version 2 or 3 it finally got there. Its stability, visual results, and relatively fast speed make this alternative very appealing to anyone who's looking for exacting quality, whether it be architectural, engineering, or character animation.

However, it's inflexibility in the areas of compositing may put some artists off; those who are look-

ing to be experimental or just like to do a lot of tweaking when it comes to what is seen and not seen by the renderer.

While some of this sort of CG magic is possible to achieve with Vray, it should really be approached how one might with traditional photography or cinematography in the real world, or you're just asking for a headache.

Either way, it's a very powerful tool in the right hands, and is an answer many people have been looking for, for a long, long time. It's a permanent part of my arsenal now, and I think others are going to be able to achieve some amazing visuals with it.

VrayforC4D - <u>http://vrayforc4d.com/</u> Price - 790 Euro

Kevin Capizzi



With the latest available technology in desktop sharing, video and voice software we can train you right in your office or home. You will not need to purchase any software to receive these services. The software we will be using works across both PC and Mac platforms and is as close to real time as possible. We do require that you have Skype installed on your computer.

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Contact the Instructor of your choice via e-mail or private message for rates and to schedule your session(s). Students will share with their instructor in what specific area(s) they need training. The instructor will then set up classes with their student according to their needs and schedule. Typical classes will run 1 - 2 hours per session. For Example: You require training on Interior Lighting, or maybe you are brand new to CINEMA and would like personal instruction on CINEMA's interface and tools. Contact one of our instructors explaining what you need. He will then work with you to schedule your training.

Fee's must be paid before your private one on one session begins.

If you need to re-schedule your session, please do so with your instructor at least 24 hours before your session starts. If your instructor needs to re-schedule, they will also do this 24 hours in advance. Exceptions can be made to the 24 hour notice rule for student and instructor in the case of an emergency.

For more Information follow this link: 3D ATTACK PERSONAL TRAINING





Tavy: Hi Marius! Thanks for taking the time to talk with 3D Attack today. First, can you tell us a bit about ROBO Design? Who are you and what do you do?

Marius: Hello and thanks for the interview. ROBO Design is actually a team of only two guys: me and my twin brother, Mihai Şucan. We come from Arad, Romania, and we are 20 years old.

I'm the digital artist and he is the Web programmer. We work together on Web development projects. I'm doing a great variety of things: from designing icons in Photoshop to almost any kind of 3D images.

For more details about us, visit: <u>www.robodesign.ro</u>.

Tavy: I'm really interested in talking to you about your image "The Wind of Change". This image was actually constructed as a diptych. For our readers who may not know, what is a diptych and what are the characteristics of your image that make it diptych like?

Marius: A diptych is a work of art (usually a panel painting) which is divided into two sections put together. The whole is intended to be greater than the sum of the parts, thus the two must be closely related.

Initially, I wanted to make a fan image dedicated to Alizée, something better than the usual wallpapers with her photos. However, as the work on the project progressed, I became interested to show a certain aspect in two different ways: being a fan.





By Tavy Pasieka





This is how my project became a diptych. One may notice that there's a correlation between the elements in the two sides of the images and a mirroring composition.

I tried to emphasize the extremes.

By doing only one side of it, the artistic message would have been incomplete. The number of elements, the colors and the symbols used in the image, were all carefully chosen to convey a certain message.

Tavy: Can you give us a brief interpretation of what this image means to you?



Marius: At first, when I was working on it... I was seeing the entire image as being very simple, but half-way through, I realized I can do something much more than what I initially intended.

This image represents the contrasts of the real world, by emphasizing the extremes of it: good vs. bad. One can see this in everyday life.

From my perspective, the purpose of this image was to show how fans see their icon and how that icon might be in reality. Of course, it's all fantasy, far from reality.

By looking at the whole image, you can notice a certain aspect: two stages, two different situations in which the fans can exist. In the left side you see butterflies carried by wind. In the right side you see puppets and toy soldiers living in an iso-lated world.

I believe each viewer has the freedom to interpret the image as he or she wants. I am always glad to hear different views.



By Tavy Pasieka



Tavy: How long did this project take to complete? Did you have days where you just wanted to give up?

Marius: This project took me, surprisingly, exactly two years. Anyone who's reading this might say it's way too much. The reason is that I didn't work on it full time, and there were many months in which I haven't worked at all, due to various reasons: school, hardware failures and such. Another



reason is that I had to learn many techniques I never used before (e.g. rigging, BodyPaint, Photoshop's Point tool – extensively used to draw the butterfly wings, etc).

Yes, there were days when I was thinking about giving up, but I never actually did so. I was making plans: "this winter/summer I will finish it", but there was always something delaying me. I was suggested to drop the project or to skip making the second part, but that would have been a mistake. I wanted to prove to myself I can finish the entire project.

Tavy: What release(s) of CINEMA 4D did you use to create this image? Did you use CINEMA's own Advanced Render or was another render engine used? What other software was used during the creative process?

Marius: The dreamy (left) side was created and rendered in C4D R9.5. The dark (right) side was done in C4D R10, and working on it was more



By Tavy Pasieka



fun, as the new scene management features were very handy for such a big scene.

For both sides of the image, I used Silo for modeling the objects, Photoshop for texturing, even though most of my textures are shader based. One thing I would like to mention is: everything in the image was done by me. No free textures, shaders or 3D objects were used.

Tavy: The lighting in this image is simply beautiful. Can you tell us a little about your lighting set up?

Marius: In both sides, I didn't use any global illumination. The entire lighting was done with standard lights. In the left side I have 194 lights, and 73 in the right side. The final look of these two sides was obtained in Photoshop through a relatively complex post-processing.

Due to hardware limitations, the first side was lit individually, in layers. Thus, I had greater control over the lighting scheme and, besides this, I used lights even for the smallest fairy hallows. As I was showing WIPs to friends, someone said I was painting with light.

In the second side, I tried to fake the G.I., this is why I have many lights in the scene.

I usually use omni-lights. For controlling the distance of light propagation, I define a radius for falloff. To create small fairies, I use visible volumetric lights with a small radius. I also often use the spot lights.

Tavy: The Rose - Angel is obviously the focal center point of this image. Please share with us a bit about the modeling process for this model.

Marius: The Rose – Angel was the second object I modeled for this project, the shoe being the first one. I meticulously modeled the rose petals in Silo. It was quite hard as it was only the second object I modeled using this technique. After that, I made the body: the wings and the cloth. As one may notice, the wings were subjected to change. I changed them three times, and each time I tried different techniques to model them.

The first pair of wings was done in Silo. The second set of wings was made with C4D aided by the xFrog plug-in. The third, and the final pair, was done in Silo.

I had to insist very much on the wings and the overall look and feel of them, because they are the focus of the image, along with the shoe. The guys to whom I was showing WIPs were telling me that they are too simple in comparison with the rest. Even in the final version, small critiques remained unsolved.



By Tavy Pasieka



Tavy: The flowers, trees and vegetation are stunning! Was any special software used during their creation?

Marius: I'm glad you like them.

Some of the plants are done using only C4D, but most of them are done using the xFrog plug-in. No presets were used, neither for modeling them, nor for texturing them. One aspect I wanted to convey into how the flowers look like is that they are a symbol of light, of nature at its best. My target was to make the left side have a painted look.

For inspiration, I searched the Web for a great variety of photos with flowers.

Tavy: What was the most time consuming part of this project and why?

Marius: I can't say precisely what the most time consuming part of the project was. But, in regards to modeling: the shoe, the rose angel and the grasshopper were the most time consuming ones. The shoe took me one week, because it was the first object to model using the Subdivision modeling technique – in Silo. The rose angel was a very time consuming element to do because I had a hard time deciding of how I want it to be like: smooth, nice, elegant and such. The grasshopper



was again a very hard thing to do, because I never modeled a 3D character – one can tell this when viewing it in the "Making of" page on my site.

In regards to texturing and rendering, I found the water in the left side and the ground in the right side as very time consuming. The left side was split into 6 scenes, thus I had to fake the water reflections. Doing that wasn't fun and it proved to be quite hard.

For the second side, it was hard to crack the ground the way I wanted, to displace debris, to achieve the look I was looking for. After I exploded a sphere in C4D, I had to manually move the debris around the hand and the shoe. Cinema 4D doesn't have a good dynamics module, so, I found myself moving the debris in Silo in a boring manner. However, the result is satisfying.

Tavy: Are you satisfied with the final image? Looking back, if you could change one thing, what would it be?

Marius: Even before finishing it, there were a few people telling me that the Rose Angel is not quite yet looking as it should. Personally, I find it good. After releasing the image, I received some feedback in regards to the composition, which apparently isn't quite very good. Yet, I still have to learn precisely what it could be improved about it.

By Tavy Pasieka

There's nothing I would like to be changed, if I look at it, but technically... there are tons of things. And, lately, it has come to my attention C4D doesn't have a good implementation for rendering bump maps and sub-polygonal displacement. These two aspects negatively impacted the look of the image, especially for the right side – where I extensively used these two features. I shouldn't even mention the render bugs encountered while working on the project. ;)

Overall, the Rose-Angel is not "perfect", but I am pleased with the result and the overall feedback.

Tavy: Are you currently working on any other projects you can tell us a bit about?

Marius: After finishing this huge project, I took a short break. But, I already have a new personal project on which I am working when time allows me to. Of course, it's a smaller project. I intend to do a 3D photorealistic room. As always, I want to keep on improving my technical skills with each new project – something I have succeeded with "The wind of change". Now I want to hone my skills in terms of lighting with this new project.

Tavy: Thanks again Marius. Your artistic style is very unique and like a breath of fresh air. I'm definitely looking forward to your next beautiful creation! I'll give you the last word.

Marius: I thank you very much for this interview and for liking my project.

As a conclusion, I would like to thank all those who have contributed with suggestions while I was working on my image.

And, setting aside the sugary stuff, any of you guys, whenever you have a huge project, stick to it if you believe it's worthwhile.

With every project you should go at least one step forward.





By Bram van Gerwen

In this tutorial I will show you how you can create some good looking mineral textures with the tools available in CINEMA.

Simple Quartz

We'll start with the basics, just a simple standard quartz material. Open the 'Crystals.c4d' File to begin. Select the mineral material. In the color channel simply make the color full white.

Enable the transparency and load a Fresnel into the Texture channel there.

Also set the Refraction to 1.2 and enable the Fresnel box. Now enter the fresnel properties. Put white on the left of the gradient and light grey on

the right of the gradient.Enable the reflection channel and set its brightness to 78 percent. Set the Specular channel to Width 39 and Height 75.

Now that the basic material is finished, we need to add a little denting that is seen on most crystals. Enable the bump channel and load a Noise shader into it.

Set the noise to Poxo and in the bump channel set the strength to -10.

When you render now you will have a result like in the image below, clear but a bit dented quartz.





By Bram van Gerwen

Rose Quartz

Let's make a rather simple variant of normal quartz, but in this version we will use Sub Surface Scattering to simulate the cloudiness of the mineral.

Open the 'Crystals.c4d' file to start. Create a new material and name it Rose Quartz. First enable the reflection channel and set the brightness to 20, we only want slight reflections on the quartz. Set the Specular channel to 39 Width and 75 Height, this setting usually works well on minerals.

If you look at references of rose quartz you can see that we need a slight subtle texture on the surface. Go to the Color channel and load a Noise shader into the Texture field there. Click on the noise to enter its properties, set it to Wavy Turbulence and for Color 1 use a Dark Purple (R 96, G 24, B 61) and for Color 2 a slightly lighter purple (R 133, G 66, B 100).

If we render now the material will look like marble rather than cloudy quartz. This is where the Sub Surface Scattering comes in. Enable the Luminance channel and load the Sub Surface Scattering filter into the Texture channel (you can find it in the Effects menu).

Click on the empty preview of the subsurface scattering to enter its properties. We're going to set up the filter to shade from light pink to darker pink. Set a knot on the left side of the Absorption





By Bram van Gerwen

filter gradient and set it to light pink. Put a dark pink knot on the right side of the filter gradient.

Set the Strength to 75, the crystals are around 85 thick so the default settings of the filter are quite ok. It is important that the Scattering length is about the same as the objects thickness. If we render now we will have really nice looking rose quartz there. The only problem now is that because we aren't making use of the transparency channel the shadows under the crystals are rather dark, instead of pink tinted like it should be. We can fix this by changing the shadow color of the main light to pink.

So select the Main Light, go to its Shadow tab and simply change the Color to (not too light) pink. The render of the final material looks like in Picture 2

Tanazanite

For the next crystal we will use transparency instead of Sub Surface scattering to simulate the cloudiness inside the crystals. Open the 'Blocky Crystals.c4d' file to begin.

Select the Tanazanite material, and start with putting a primary red color in the Color channel, set its brightness to 27, to lessen its influence on the transparency later. The reflections of this crystal will be simple but subtle, go to the Reflections channel and load a Fresnel into the Texture field there. Click on the gradient to enter the fresnel



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By Bram van Gerwen

settings, change the left knot to a light grey and the right knot to a dark grey. This will make the material reflect more on sheer surfaces aimed towards the camera.

The specular channel should be set to Width 41 and Height 99 for a bit brighter lines. Now enable the Transparency channel, set the Refraction to 1.2 percent. In the transparency channel we can perform the same trick as in the reflection channel, meaning make it more transparent on sheer surfaces towards the camera than flat surfaces. Load a Fresnel into the Texture field of the transparency channel and enter its properties. On the left of the gradient put a light red color (R 255, G 206, B 206) and on the right of the gradient put a dark red color (R 129, G 2, B 2). If we render now the material looks like red glass. We can cloud up the inside by setting the Dispersion in the transparency channel 20. The higher the dispersion the longer the render takes though. Now that we have the material looking like a mineral we need to roughen it up a little to finish it off. Enable the Bump channel, set it to 10 Strength and load a Noise shader into its Texture field.

Set the Noise to Poxo, set its Color 1 to black and its Color 2 to white. To lessen the amount of holes in our crystals set the Low Clip of the noise to 17 and the High Clip of the noise to 91.

If you render now you will have a result like in Picture 3.







By Bram van Gerwen

Amethyst

This material is difficult to reproduce, amethyst is transparent and has lots of volumetric aspects inside the stones itself. We can however fake this with just surface textures. It won't be perfect but will come close to the real thing.

Open the 'Crystals.c4d' file again and select the Mineral material. Let's start with the simple things first. Enable the Reflection channel and load a Fresnel into it. The Mix Mode of the fresnel must be set to Normal and the Mix Strength to 76. For some extra specular on our material we can enable the Environment channel, enable it and load a Fresnel into this channel as well, set its Mix Mode to Subtract and its Mix Strength to 38 for a subtle effect. In the Color channel simply change the Color to black.

Now for the tricky transparency. Enable the transparency channel and set its color to a dark purple. Set the Refraction to 1.07 and enable the Fresnel box. Now load a Layer shader into the Texture field.

Click on the layer to enter its properties. What we are going to do here is mix a couple of different noise types to create an interesting pattern on our amethyst. Click on Shader and select noise to create the first layer. Make sure the blend mode is set to Normal and the slider behind it to 48 percent. Click on the small picture to enter the properties for the noise in this layer. Set it to Electric, Octaves 5, Low Clip 14 and High Clip 77.

Now go back to the layers and create a new noise layer above the one we just created. Set this noise to Voronoi 3, Low Clip 26 and High Clip 71. Now back in the layers overview change the blend mode of this layer to Subtract

Now create a third noise layer above the two we have, change its blend mode to Lighten and enter the noise properties. Set the noise to Luka, change the Global scale to 250, Low Clip to 24 and High Clip to 65. You can see in the preview of the layer shader we have a nice blend of noises now, we just need some more contrast. Click on the Effects button and select the Brightness/ Contrast/Gamma option. We will now have a layer to control the contrast of all the previous layers. Set the Brightness to 0 percent, the Contrast to -15 percent and the Gamma to 0.6.

The more noise layers you stack in this fashion the longer the render can take. When you render now you will have a result like in Picture 4 (See Image 4.

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Frequently Asked CINEMA 4D Questions

November 2007

Q: Is there was a way of duplicating objects without physically duplicating an item over and over? I have to insert a lot of trees into a scene and they taking up to much resources..anyone have any suggestions?

A: Yes, what you are referring to is the Instance Object. Just make it the parent of the item you want to duplicate, and set the parameters in the AM to your liking. If you really want to go crazy with Object cloning, though, your best bet is the MoGraph module.

Q: I am a newbie in 3D modeling and I don't really know how to add downloaded textures to objects. Could somebody help me out?

A: Is the texture a .c4d file? If so, in your materials manager, go to File->Load Materials, and choose that file. If it is JUST a c4d file then that will do it. If it is a c4d file with a TEX folder, you will want to move the contents of that folder to the TEX folder of your project.

If it is a jpg or psd texture file, then you will have to place it on one or more channels of a material. To do this, make a material, go to, for example, the color channel, and where it says "Texture", click on the ... and navigate to your file.

Q: I have Cinema 4D 9.6 (no advanced render). I have a plane of glass and behind it a glowing object. I can see the glow when the glass is not there, but not when it is there. Can you help me?

A: Glow (the regular one) is a post-effect, as you should have read in the manual. To do what you want, you need Advanced Render. Instead, go to Render Settings and in the Effects tab, turn off Object Glow. Add the Glow effect and adjust the parameters. Now the glows will shine through transparent objects (not in reflections, though). The problem is that now almost everything will shine. So, add a Compositing tag to the object you want to glow and set an object buffer number to it. In the Glow Effects parameters, turn on Use Object ID and set it to the number you defined in the Compositing tag.

Q: I am creating a human figure with the abdomen as a ball and the upper torso as a square. After carefully sculpting both parts I now cannot get the two meshes to join. Is it possible or should I just make it all out of a cube?

A: Select both meshes, choose Connect. Select the newly created mesh (that is the sum of your two original meshes) and, in point mode, choose Optimize. You can now delete the two original meshes, if you want.

Q: Is there a way to change the color of the wireframe and points from that light blue to something darker? Thanks for the help!!

A: Yes. Under EDIT->PREFERENCES->VIEWPORT->INACTIVE POLYGONS

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Image Name: "All is lost!" Artist Name: Anthony Minto Country: United Kingdom Date Created: October 2007 Software Used: CINEMA 4D, Photoshop Website. http://www.mintyrepublic.co.uk

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Image Name: The Odessey Artist Name: Michael Daglas Country: San Diego USA Software Used: CINEMA 4D 9.5 Painter 9 for the backdrop Created: 10/ 16 / 07

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Image Name: September Artist Name: Matt Roussel Date Created: September 2007 Software Used: CINEMA 4D 9.603 Country: France Website: www.mattroussel.com

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Image Name: Ray-Bot Artist Name: Theirry Zaugg Country: Switzerland Date Created: September 2007 Software: CINEMA 4D 10.0 and PS CS3 Website: www.bediff.com



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November 2007

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