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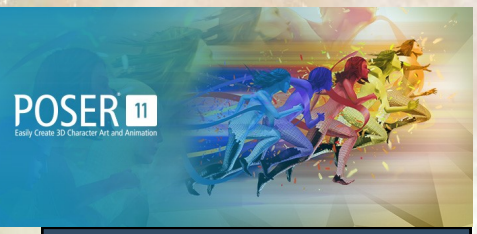
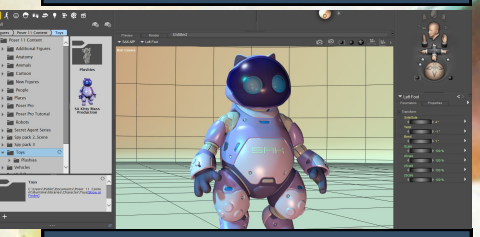
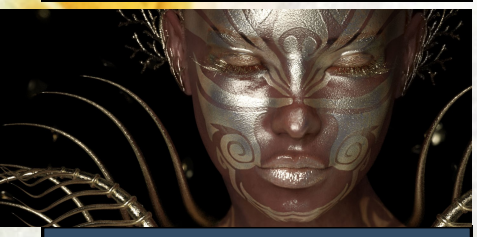
SPECIAL ISSUE: ADVANCED RENDER ENGINES



CHARLES TAYLOR (POSER 11)



POSER 11 PRO — REVIEW



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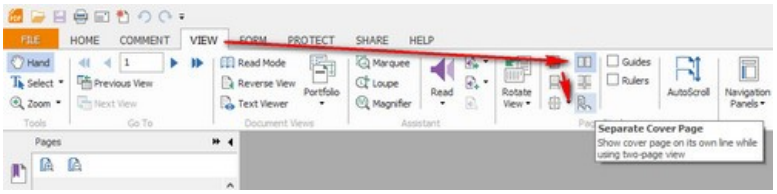

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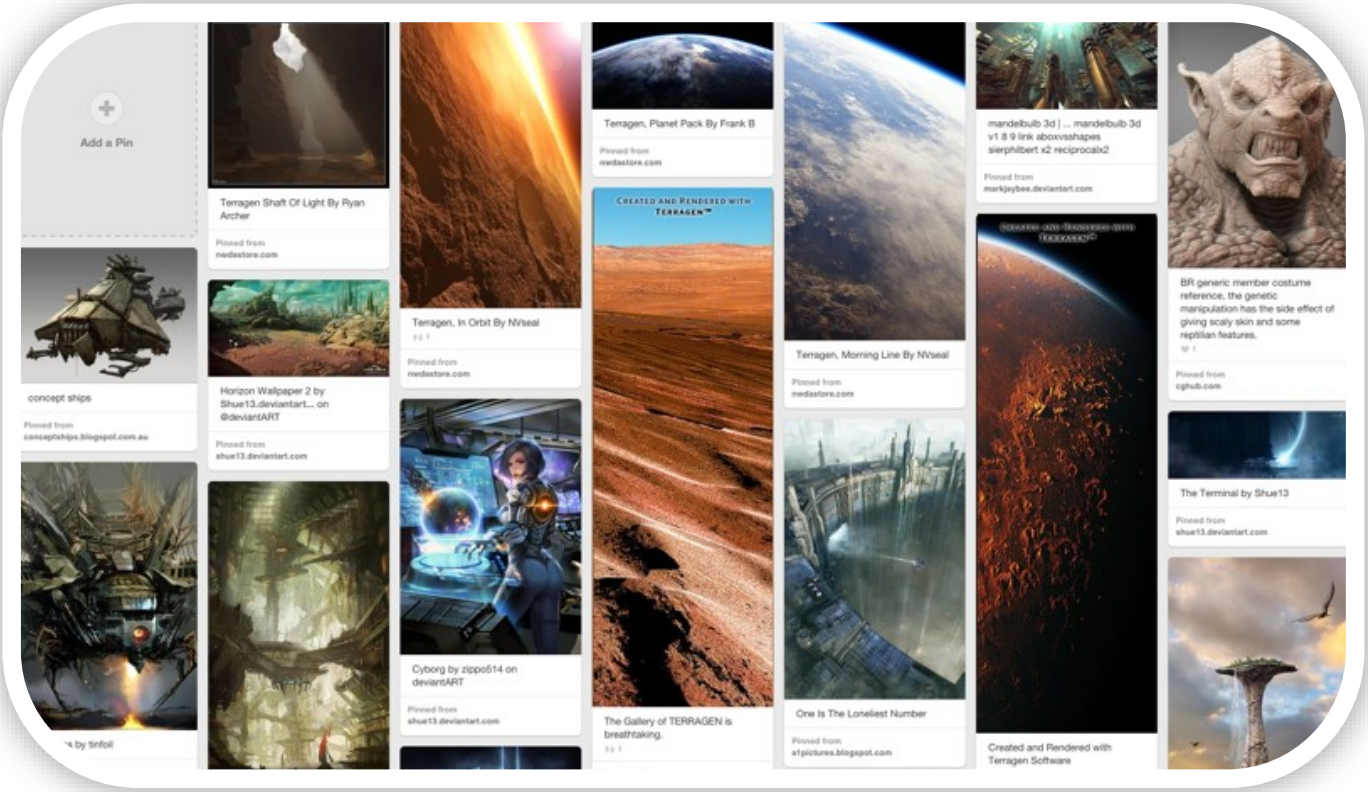

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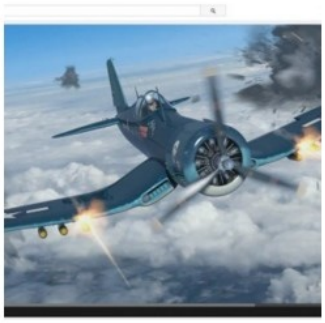

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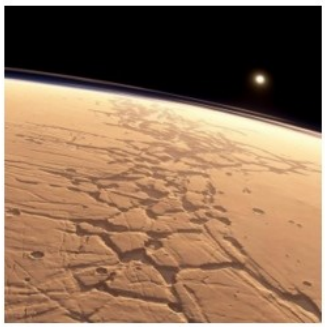

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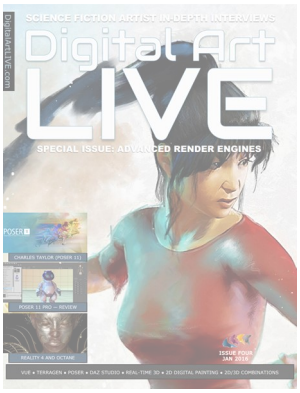
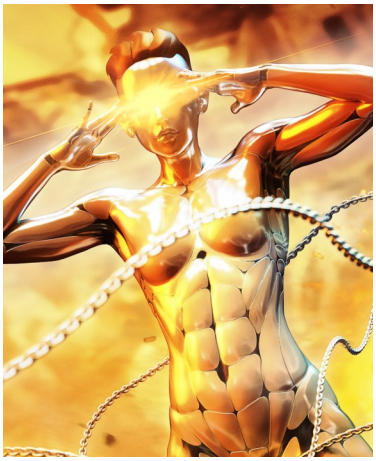


Front Cover: Poser 11 painting by Daniel Scott Gabriel Murray.

ADVANCED RENDER ENGINES ISSUE

CONTENTS



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EDITOR'S LETTER

WELCOME...

This issue is centred on rendering and examines rendering options in Poser and DAZ Studio, including the Reality plugin which can be used for both. Under the bonnet, the algorithms and techniques for rendering are complex. They deal with at least sixteen visible types of features in a scene. Everything from shading, texture mapping, caustics, reflection, diffraction, transparency, shadows, indirect illumination, depth of field to motion blur and more—there's a lot of work to be done by the engines involved!

Imagine trying to trace every single particle of light in a scene—it would be well night impossible. So some more practical modelling techniques have been invented with less cost to processing time; ray casting, ray tracing, rasterization and radiosity. With these methods in mind, software can even use a mix of these methods to provide an effective solution to rendering.

So our hats off to those who have worked on these algorithms over the years. One of the oldest rendered 3D animations was back in 1972, by Ed Catmull and Fred Parke—an absolute pioneer of 3D technology. Catmull was eventually one of the founders of Pixar.

The animation was of a 3D hand (based on measurements of Ed Catmull's hand) and face and was later used in the 1976 sci-fi film Futureworld (sequel to Westworld). The animated film by Catmull was surprisingly realistic for it's day. As well as Futureworld benefiting from his work, some of the other first films benefiting were Superman, Star Wars and Tron.

Thresholds now have been crossed where rendered 3D animations have grossed more than one million dollars in a feature length CGI production, the first was Toy Story 3 in 2010. In 2015, the motion capture technique allowed in the re-creation of a deceased actor (Paul Walker in Furious 7).

So for the hobbyist, photo-realism for still images of characters is now very much with us, thanks to what's available for both Poser and DAZ Studio.

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POSER 11

Digital Art LIVE interviews **Charles Taylor** ('Nerd3D') from Smith Micro, the makers of the powerful new Poser 11.

3DAD: Welcome to Charles Taylor, who has been the Product Manager for Poser at Smith Micro since April of 2015. He's been involved with the Poser software since 1999, one of the first sellers of content on a private site for Poser. And Charles has also been involved with the Poser development team since around Poser 6. So, welcome, Charles. Good to speak to you again.

Charles: It's really great to talk to you again. The day we launched Poser, Steve Cooper — the previous product manager — called me, and I arranged to get him his NFR complimentary copy of Poser, which is something that he'd always done for me in the past. So it was kind of poignant to me, it was like kind of 'a changing of the guard' to me, and Steve has moved on to Litro. I couldn't be happier working with Poser now. And version 11 is, I think, a real step forward for us.

3DAD: So, has it been a wild ride since you started back in April 2015?

Charles: I can't even begin to express how crazy it is. There's an old expression about 'if you like sausage, you should never visit a sausage factory'. But actually, after having worked in the factory, I have a much greater appreciation for what goes into making Poser — what it is and all the complexities that go on behind the scenes. I wish I could share all that with everyone, but of course, I can't tell everything. But what the people out there, the users don't know is the real heartfelt, genuine care that goes into the development of Poser. The users really are — the people that depend on this program for their job or for their livelihood — they really are the first thing we think of, with everything we do.

3DAD: And have you got some kind of core of the team there that's been there, like the old guy that's been there since the very beginning?

Charles: Larry Weinberg is the creator of Poser. He is Poser's daddy. And he's still there on the team and he's our lead developer. And a lot of what I just said — about worrying about the users and making it easy to use and powerful and all of that — that's his driving force. Everything that he does is motivated by making Poser better for the users. And Uli Klumpp has been with the team for years, I want to say from the very beginning, but I don't think so. I think he started in the Poser 5 era. And the rest of the programmers have been around with Poser for a long, long time. And I actually don't know everyone when they actually started on the team, because I'm the new kid, I just started this year, but it's a really, really tight-knit team.

3DAD: That's good to hear. So how long has the new Poser 11 been in the making?

Charles: This version has been cooking since shortly before I started. That was when the real development push for Poser 11 started. And it was a long time, I know, between Poser 2014 and this version coming out, it's like 30 months between the two versions. And part of that, is because we were exploring other ways that we could expand the Poser market.

Now, one of those ways was the videogame development version. Which didn't yield the kind of growth in the market we wanted it to. We decided to abandon the game dev ideas and focus on the core users that we have, and to kind of get ourselves back on track with Poser 11.

Picture: Detail of "Pauline" (the new flagship Poser 11 female character) by Erogenesis, an artist based in the Western Sahara desert!

CHARLES TAYLOR

USA

PRODUCT MANAGER FOR POSER | SMITH MICRO SOFTWARE

WEB

Instead of trying the other vertical markets [*specialized professional niches, such as for indie videogame developers*], we wanted to stay with the market we knew best, and to serve that market we knew best, the best we could.

3DAD: And was backwards compatibility… would you say that's the most key consideration when you started developing Poser 11?

Charles: I wouldn't say it was *the most* key consideration, but it runs throughout the development and everything we do. It's a very important consideration. Every new feature is, "How can we implement this in a way that's not going to break legacy content? How can we implement this in a way that allows content developers who are working in the current version, to still develop content that will work for the legacy versions?"

And sometimes, the things we do may not make really obvious sense, at first, as to 'why in the world we did it the way we did it'. And *then* when you realize that we really did it so that we can maintain that backward compatibility, then it makes more sense why we did certain things.

3DAD: Now, I imagine, over the years, you've had different feedback about the user interface, and the fantastic news for Poser 11 is that some aspects of that interface have changed. So can you talk about that and how that's been improved?

Charles: The biggest thing is that we have introduced the user interface scaling. Now Poser's user interface has always been kind of unique, and we wanted to update it to a *little* more modern feel without making our users go hunting for buttons they 'knew where they were last time'. So we've tried to do that kind of in a gentle way, where we're gradually refreshing the interface without drastic changes.

But the engine behind it is where the biggest changes have been made, because we've converted all of Poser's user interface — assets which used to be just basically Photoshop files, actually they were just pixel graphics — we converted them into scalable vector graphics, and this has allowed us to add the feature of a scalable user interface. That way we can support the large and high-density monitors that are becoming popular now.

So this means that people with 4K monitors don't have to suffer with little bitty, tiny text they can't read. There's just a setting they can use to turn up the entire user interface of Poser to fit whatever display density monitor they're using.

3DAD: Awesome. That's a major advantage, and yeah, monitor size, over the last few years, has just kind of exploded and got cheaper and cheaper for everyone.

Charles: Yes, and there's a second aspect to this. If you've got a tiny little monitor, let's say you're working on a Microsoft Surface device or something like that, and you can't fit *everything* on the screen, you can't see it all, then you can actually scale the interface *down* so that everything will fit on the screen.

And the other really important point is that if you have problems with vision, like 'I'm getting old, my eyes are terrible, I need things to be bigger so I can see it'. So, you can actually just turn the display size up on a standard scale monitor, just to make things bigger — so then you can see those little buttons.

3DAD: Now, what's a key change to help workflow for the average artist or illustrator? Which, I take it, is probably the biggest chunk of the users for Poser?

Charles: Right. That is going to be pretty much the bulk of the people who are using Poser, to create still-image illustrations. And those are the people we want to focus on the most. And there are so many things that we've done to make life easier for them. Many of these things are user interface changes, or the way that you organize your workspace.

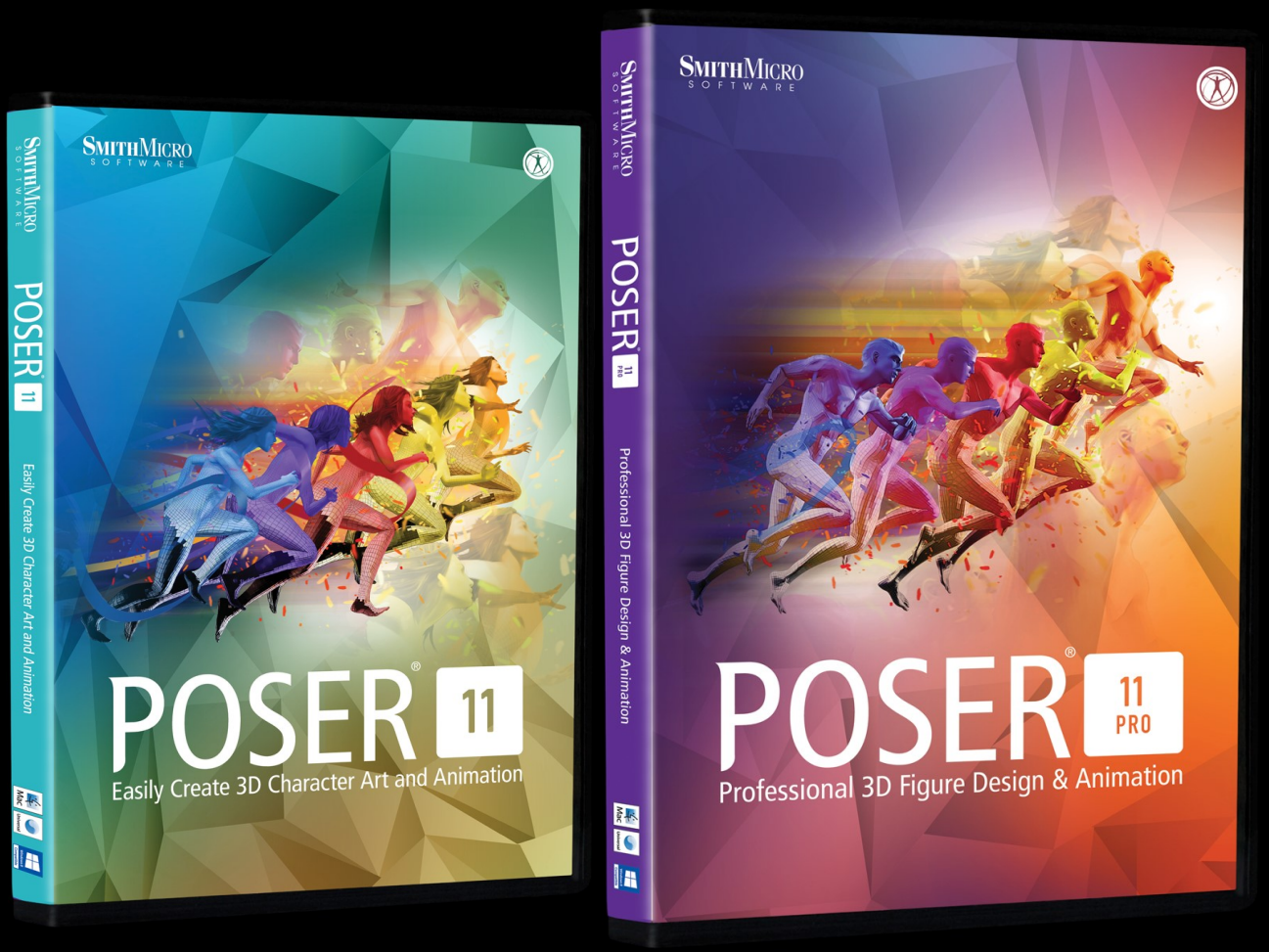
Poser 11 or Poser Pro 11?

Some key features in the Pro version:

There are too many Pro features to sensibly list here, including a great many for Poser character and clothing developers. The full details are available in a huge spreadsheet on the Smith Micro website. But here are the Pro features most likely to be of interest to artists:

- Graphics card (GPU) rendering acceleration — but this is for NVIDIA's CUDA-based cards only, and they need *lots* of on-card memory.
- Microsoft Kinect 1 and 2 support for motion-capture (Windows only) for animation. Potentially also useful for comics artists seeking to quickly output exact poses and expressions.
- PoserFusion plugins — these take your Poser scene out to high-end 3D software for rendering. Lightwave, 3DS Max, Maya and Cinema 4D are currently supported.
- Collada and FBX import/export. A single texture map ('texture atlas') alongside the FBX.
- Can use HDRi to light your scenes.
- 'Render in background' (Firefly only) and overall improved 64-bit rendering.
- Export your renders as .PSD Photoshop files, with layers including masked z-depth and a shadow pass merged onto white (Firefly only).
- Network rendering via the render Queue Manager (Firefly only).
- In-scene measurement tools — useful for crime scene recreation, stage set pre-vis, Microsoft Hololens content creation, and more.
- Creation of figure control-handles (such as mouth-corner 'grab handles', for subtly tweaking a character's smile). Use of these is available in both versions, but their creation on a character is a Pro-only feature.

Note that Poser 11 Pro is an 'all-in' package, so once purchased your wallet shouldn't need to be raided to unlock further features.



Now, Poser already had a dock-able workspace, where you could rearrange palettes the way you wanted them. But what if you want to you want to pick the left hand of the third figure from the back row — yet you've got a lot of other content in the scene, like several people in the scene, an environment in the scene? In the case picking the character and their hand can be difficult to do. You have to choose it off of a menu, or something like that. And if you're working with that figure a lot, then selection can become cumbersome.

So… a new feature that we added is something called Custom Parameter Palettes. And what it does, it allows you to create a new blank palette, and you can take the parameters off of any figure, any prop, basically anything in the scene and add them to these custom palettes. So you have instant access to whatever parameter dials you need, whether it's a morph or a posing dial, or whatever. And the cool thing is you can *save* these with the scene, or you can actually, if you're saving a figure back to the library, you can save it with the figure in the library.

So, for example, you want to create a figure that has all the controls for the hands, mapped to a Custom Parameter Palette like that. One of our beta testers, just to be crazy, did that, put *every* bend, twist and rotate dial for *every* finger on both hands on its parameter palettes. He was trying to break it, to see if there's some kind of limit to how many you can have. And he actually successfully created 25 parameter palettes!

3DAD: That's a useful tester you've got there.

Charles: Yes, he was *very* persistent. And that kind of proved that there really isn't an outer limit there, in how far you can go with this feature. And of course, you could save all those palettes with a figure, if you wanted to pass on that same crazy layout. So that's one thing we added to Poser 11.

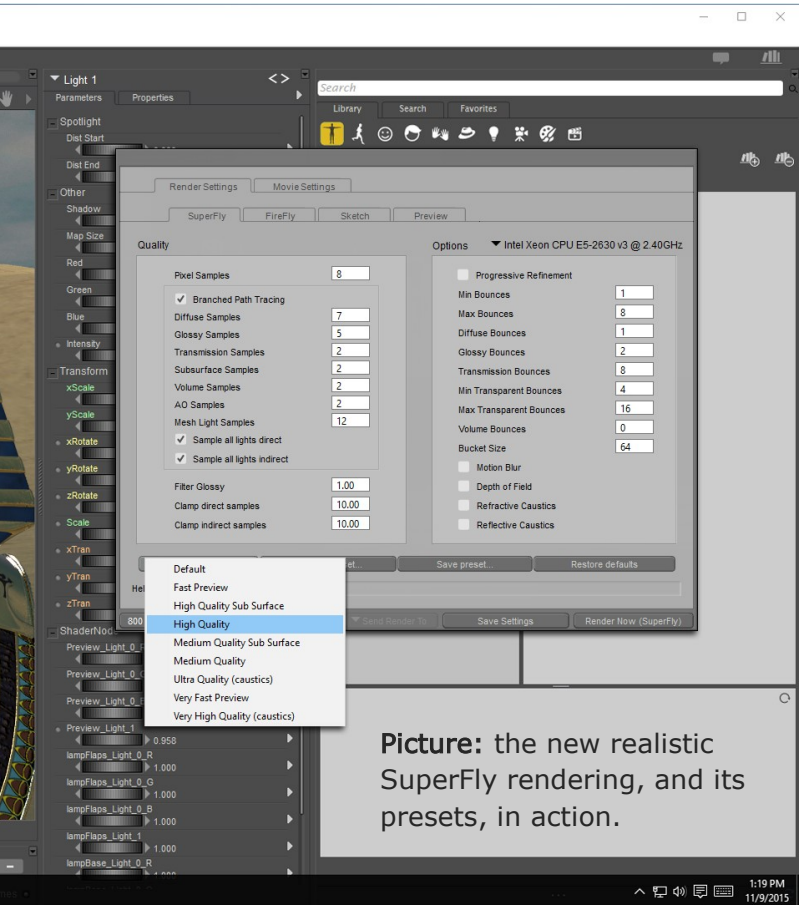
3DAD: What would you say allows for faster useof Poser. Especially for a newer user? How does the new workflow help them?

Charles: Well, I'm going to have to give my 'Poser is easy' speech here, because you've kind of opened the door for that. Everything that we've tried to do this time is to make things more obvious and easier, not just for the people that already know Poser, but for the person who has just picked it up for the very first time and

has jumped in and is using it and have never seen it before. For example, we've added a simple select tool, and most other programs have that, and Poser never had a simple select tool, for every tool did something specific. And now we've added that, so it's more of an industry-standard type approach, to help the new user to take their first steps.

And probably the biggest thing, and this has always been for Poser, is that we have very good documentation [*1,000 page PDF manual and 1Gb of Help system*]. I also have to mention that we have a fantastic community of people who are users that support other users, who help each other out. So there's a massive support network there for people new to Poser.

3DAD: Okay. So, one important new feature is SuperFly. Which is a physically-based rendering option which sits side-by-side with the older render engine in Poser. And I believe, it uses the open source Cycles Engine from Blender. What made that a good choice to incorporate that into Poser?



Picture: the new realistic SuperFly rendering, and its presets, in action.

Charles: It is Blender's Cycles, and some people are a little confused, but we're calling it both. We used the Cycles Render Engine, and our implementation of it in Poser is called SuperFly. Because we've done some stuff to add things to the Cycles Engine, to make it work better with Poser. Now, part of the reason we chose Cycles — first of all it's an open source render engine, so there's a massive community which is developing for it actively all the time, and that actually includes us now. We didn't want to be a leech on this generous community, so we've added some features to the core engine, and those will now be available to people using Cycles on other platforms.

Another part of it was that we're looking into the future... people wondered why we didn't choose iRay, and iRay *is* a fantastic render engine from NVIDIA, and we really seriously considered that. And part of it is we want to eventually be able to support *all* the graphics cards. Right now, the GPU option is only for NVIDIA CUDA cards, and we're hoping that as Cycles' development continues, that we'll be able to add support for the ATI graphics cards as well. That kind of depends on the development of OpenCL and other languages, on if they're going to be able to bring us to the right level of support. We don't want to lose features, in order to bring those cards on board. We want to be able to add features to get there. So that was another key consideration.

And probably the biggest benefit is that Cycles, just like Poser, has a massive community of people that are supporting it. Not just the developers, but the people that are cooking up recipes of shader combinations that work in Cycles. So you can go out to the Internet and Google, "lava shader for Cycles", or go to sites like BlendSwap. And you can take the free Creative Commons licensed recipe that you find and bring it right into Poser — and, for the most part, it's *just going to work* in SuperFly. There are very few Cycles nodes that are not implemented in Poser.

3DAD: And I've heard that one of the most requested features was rendered caustics, which can be provided by SuperFly as well. Why do you think that was requested so much?

Charles: Well, it was caustics and reflected caustics, and another thing that was requested was volumetrics. They're all parts of creating a real physical hyper-realistic render. I don't want to discount Firefly, but when you want to render glass, it absorbs some of the light colors as it passes through it. And the light that comes out to the side with Firefly, it didn't really come out the other side, there was no light in the shadow, basically. So that the little highlight that's in the center of a shadow behind the glass, that wasn't there.

So you couldn't get that really, *really* realistic look that you want. That was the driving force behind those requests.

3DAD: So does rendered caustics help improve things like water and that type of thing?

Charles: That's exactly what it's for. And I have to say that it's such a powerful feature to add to the render engine. It does increase the render time, I have to put that little disclaimer in there, because it's a very demanding thing. It requires what's called 'photon tracing' basically, or 'photon mapping', where the render engine has to figure out where *every* little particle of light went. But if you give those renders time to cook, you can get absolutely amazing results.

3DAD: And a type of lighting that's been included in SuperFly, which I don't think was in Firefly, is Area Lights, is that correct?

Charles: Yes, it is. And this is one that we were able to actually 'back-port', I guess is the way to put it. We added area lights and we're looking at this wonderful new lighting technique that we have. Where, basically, it simulates a photographer's softbox light, for example. And well, Firefly didn't have any notion of that. So it's like "we really need to bring this back into Firefly…". So, Stefan, the guy who does all of our render work, said, "I think I can do it. I can bring it into Firefly and make it work." And lo and behold, he did! He pulled it off. So the new Area Lights have actually been added *back* into Firefly, so that it can support them as well.

So, yeah, Area Lights are a great new tool. And because the lights are an actual physical size, they aren't the infinitely small single point of light, so you get a much more realistic look on your shadows. That's the whole point behind this. And of course, your reflections *reflect* those lights as well.

3DAD: Is there any other area that SuperFly brings to the table that you'd like to mention?

Charles: Well, I think probably the biggest part of SuperFly, is it's a physical-based render. So it does things for you that you previously had to achieve 'through brute force'. And the biggest example is going to be seen in things like reflections and reflected light in specularity. Let me give you an example of this.

In Firefly, in a procedural render engine like Firefly, you have to specifically setup a material to be reflected. You add a bunch of extra nodes that says, "Hey, this material is going to reflect." In SuperFly, you don't do that. A material that is glossy and smooth is inherently reflective. All you have to do is say is "This is a smooth material," and it's going to automatically reflect. You don't have to set that specifically. So a lot of this, a lot of the learning of Cycles and how to use the SuperFly implementation is learning how to *not* do things.

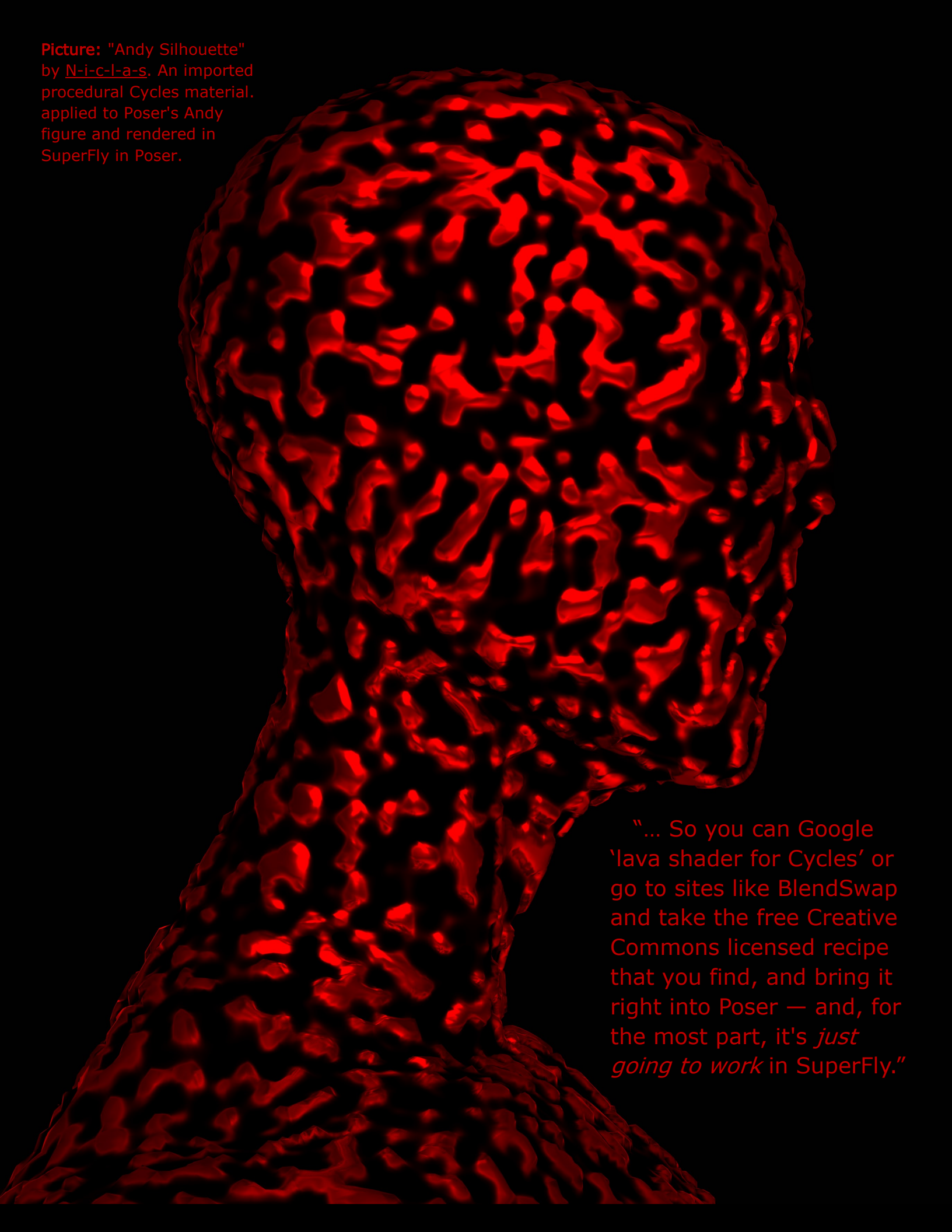
3DAD: Now, I just thought of something. What about sub-surface scattering? Is that improved in... or how is that implemented in SuperFly? Again, is that down to the PVR material?

Charles: There's PVR, physical-based nodes — they're BSTFs, they're called — for skin, for sub-surface scattering and all those types of nodes exists like they do in Firefly. And the interesting thing is that Firefly's sub-surface skin algorithms are very, very good, and they're actually just as good as the ones that are available in SuperFly.

And another step on this, which kind of relates to the way we implemented it, is that the sub-surface nodes that you could use for Firefly, those still work in SuperFly. In fact, all of the old Firefly nodes that you're familiar with and already know how to use.

3DAD: Oh, that's really useful.

Charles: That's a big part of the implementation. We went to great lengths to take the existing nodes that we have, all of those shaders that you already know how to use, they're going to work in SuperFly. Except for the ones that don't make any sense. There are a few nodes like the gather node. There is just no logical place for it in SuperFly, so it kind of got left out. There's a couple of others like that. But generally it makes it easy to kind of slowly work your way into using the Cycles node without having to learn to use a whole new render engine all at once.



Picture: "Andy Silhouette" by N-i-c-l-a-s. An imported procedural Cycles material. applied to Poser's Andy figure and rendered in SuperFly in Poser.

"… So you can Google 'lava shader for Cycles' or go to sites like BlendSwap and take the free Creative Commons licensed recipe that you find, and bring it right into Poser — and, for the most part, it's *just going to work* in SuperFly."

3DAD: Now, what new free content arrives with Poser 11? I think there's a new character in the bundle, isn't there?

Charles: Yes, we have Pauline. Pauline shipped with Poser 11, and she demonstrates a number of the new features available in Poser 11. One of them is that some of her materials are what we call hybrid materials. We made a a single material that contains both the Firefly, the legacy style material, and the SuperFly, the new type material, all in one shader setup.

And so basically, depending on which render engine you're using, Poser will *just choose* the right one for you. So you don't have to have completely separate materials for the figure to be rendered at one engine or the other. One material does both.

3DAD: Oh, that sounds a real advantage. Any more news about the new Pauline character?

Charles: Aside from the skin, there's a whole bunch of new rigging tools or rigging features included in Pauline. She has a fully-rigged face. So basically there are little 'chips' on the face, basically little places that will highlight as you move the mouse over the face, and these 'chips' allow you to grab and move those face parts with the mouse. Instead of having to use dials to achieve subtle expressions. You still can use dials if you want to, but if you want a more interactive way of working with facial expressions, then you can use these bone 'chips' that control those parts of the face.

And the bone 'chips' are actually a new feature in themselves. People who are very familiar with Poser content know the term 'ghost bones'. Basically, it's a body part in the figure that doesn't have any of its own geometry. And 'ghost bones' can be a little tedious to work, with because you can't select them directly in the user interface, there's nothing to click on. Well, what we've done is created a new feature called the Control Props. And the control handles there allow you to take any piece of geometry and assign them to those 'ghost bones' and give them a handle, and then they're treated just like any other Control Prop in the scene. They'll just not render when you render the scene.

3DAD: So with that extra way of manipulating the face, it's a little easier to create expressions now?

Charles: I think it's much easier to create custom expressions now. And because it's weight-mapped driven too, so you've got a much greater control. People who rig for Poser or other programs know that you can do with one body part what takes a thousand more to do. And now you've got, I think, it's 26 body parts in the face. So basically, all the major muscle groups in the face are represented by a control chip. So you have all of that power.

And this kind of relates to some of the other new rigging features. You can not only rotate the body parts in the face, or any other body parts, but you can also *translate* them. And this is a new rigging feature we've added the ability for smooth translation. So if you grabbed the corner of the mouth, you can now rotate it up, rotate it down, twist it, but then you can also translate it to the side — up and down, left and right, back and forth — to create a smirk, if that's what you're after. You'd translate the corner of the mouth back and to the side a little bit. So we've added a whole another three dimensions of control to all the body parts.

3DAD: Now what about the new real-time Comic Book mode feature?

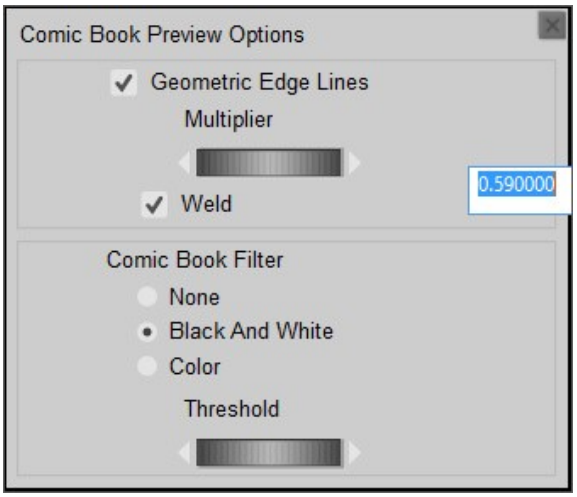
Charles: Oh, this is one of my favorites. I love this. Okay. I like doing animation and comic book type stuff anyway. Many of your readers will have heard of Brian Haberlin's sci-fi book *Anomaly*, the world's largest full-color graphic novel. He uses Poser. So, one of the ways that he used Poser to create all of those images in the book was to take the figure's geometry, flip it inside out, and turn it all black, and this creates a hard edge, that looks like an inked outline around the character. And there was lots of real work involved in doing all that flipping around geometry and the rig, that's *just too much* work. So we want to make it easier for comics artists in Poser 11.

Picture:
"Pauline" (the new flagship Poser 11 female character) by Erogenesis, an artist based in the Western Sahara desert!

"… all the major muscle groups in the face are represented by a control chip. … with this new rigging feature we've added the ability for smooth translation. So if you grabbed the corner of the mouth, you can now rotate it up, rotate it down, twist it, but then you can also translate it to the side — up and down, left and right, back and forth… "

So we used Poser's the OpenGL preview engine, and gave it a new mode called geometric outlines. It flips the geometry around and turns it all black, and creates what looks like an inked outline around the figures in the scene, or whatever you turn it for.

And what's even cooler about this is this is done in the real-time OpenGL preview engine. You don't even have to render the scene with a Preview production render. You just go to anti-alias the current scene and you're done, and it's extremely fast. So for people that are doing comics production, it couldn't go any faster.



3DAD: So... you get this kind of sketching happening in front of you, as you watch?

Charles: Actually it's all done instantly. It's all real-time. It's kind of amazing, actually. And that's only kind of half of it. In Poser 2014 we already had a comic book preview mode that made the scene look like it was kind of an ink and paint type drawing. Then you add these new geometric outlines onto that and you've got almost a perfect comic book style drawing right in the OpenGL preview render. Instantaneously.

3DAD: So Poser is also used by character developers. Tell me about the adaptive rigging.

Charles: Adaptive rigging is a new feature that it's not a *totally* new feature. In the past we've had the ability for figures to adjust their joint centers to drastic morphs. What we've done with adaptive rigging is to automate the process of adapting the joint centers.

Now, let me kind of go through how this works. When you build a rig for the figure, it's built for the current shape of the geometry. And if you create a morph or a different shape for that figure which is drastically different — say the arms are longer, or the shoulders are in a different place — then the original rig will no longer work, because the center of rotation for those joints is in the wrong spot.

So what you need to do is to move that center so that it's in the right spot, for that new shape for the figure. And in the past, this was a very tedious, time-consuming, click-y process that wasn't any fun. So I said, "We have the ability to match morphs already. Why can't we do the same thing with the centers?" And two days later, it was working, and the level of precision with this — I was absolutely gobsmacked at how well it worked, because some of the controls, for example, in the new figure Pauline are very... like the eyelids and stuff like that, these are *very* small body parts that are *very* precisely aligned. And now I can create a morph that makes Pauline twice her original size, and those joint centers, when applied with the new adaptive rigging setup, stay in *exactly* the right spot, so that her eyelids still blink just like they're supposed to.

It makes life *so* much easier for people who want to create drastic morphs on characters, because all they have to do is take the figure into ZBrush or whatever they use to model in, create the morph, and hit the tool to match centers to morph, and they're done. It's literally that easy.

3DAD: So taking a figure, making it bigger, gives you more control over all of this.

Charles: Yes, and once this has been setup, then the centers follow automatically. Basically, you can spin the dial for that new figure shape to whatever size you want it to be, and the centers for the rig will follow that new morph.

3DAD: Now, I know you're a big fan of animation, and I know that Joe Dennison for the Rooster Teeth Studio has positively commented on the new version of Poser 11, since it will be used for their popular online animated series *RWBY*. So what are some of the biggest improvements for animation?

Pictures: SA Kitty ships with Poser 11. Seen here rendered with: Comic Book Mode (left); colour flats (centre); and Comic Book in black and white, with charcoal Sketch Designer preset applied only to toon outlines (right).

Picture: "Wastelander" by Mel of BlackTalonArts. Poser 11 and SuperFly.

Charles: Well, the Comic Book Mode's support of the geometric outlines. That kind of ties into the animation, because there's another facet of that tool. The width of the lines, for example, can be controlled parametrically through the animation controls. So, basically, you can key-frame the line thickness there. And there are a lot of features like that. At first, these may not seem like they're directly related to animation production, but by streamlining the whole user interface, we've made the animation workflow a lot easier.

There's another kind of general UI improvement that kind of relates to this. When you're working with highly complex high-poly populated scenes, I'd mentioned the Custom Parameter Palettes. There's also an Actor Selection History. And you can kind of think of it like your 'back' and 'forward' buttons in your Web browser. Basically, you click the 'back' button and you'd go to the previous Web page. Well, in Poser, you click the back button and you choose the *last body part* you had selected, and there's actually a place to right-click it, so you can pick from a list of previously-selected body parts.

So if you're working back-and-forth through a figure, in an animation — you're working up and down the arm to get the pose the way you want it — then you have that Actor Selection History right at your fingertips so you're not having to dig through selections or pick it off of menu. Just *click, click*, and you're there.

3DAD: So that sounds great. Now, what about somebody who's wanting to start animation in Poser. Are there are a few things in there to help them get things up and running a bit more quickly?

Charles: Oh, absolutely. Two of our 'easy things' have been revved up for Poser 11, and they both support all the new figures. So two of the biggest of these is the Walk Designer and the Talk Designer. And as their name implies, they are tools to design walking and talking. With the Walk Designer, you draw a line in the ground and pick from a selection of walks styles and hit 'apply', and your figure is walking down that line. And it really is, for the most part, *that* simple to do. It takes a matter of few clicks, and you've created a walking animation. And anyone who works in animation knows that that's like "the nightmare". When your producer comes and says, "I need you to make this figure walk across the room, and I need it by 5pm." You're going to pull your hair out. But with Poser, you click a few buttons and you did it, you're done. Your character is walking across the floor.

It's the same approach with Talk Designer. Which is a lip-sync tool. So you basically feed it a .WAV file that has the vocals for your character talking, then you can supplement this .WAV with typed-in text, to spell out to Poser exactly what the character is saying in the script, and then Poser creates the lip motions to match that speech in a few seconds.

3DAD: Incredible. Now then, there's just two versions this time — a Poser 11 and a Poser 11 Pro version.

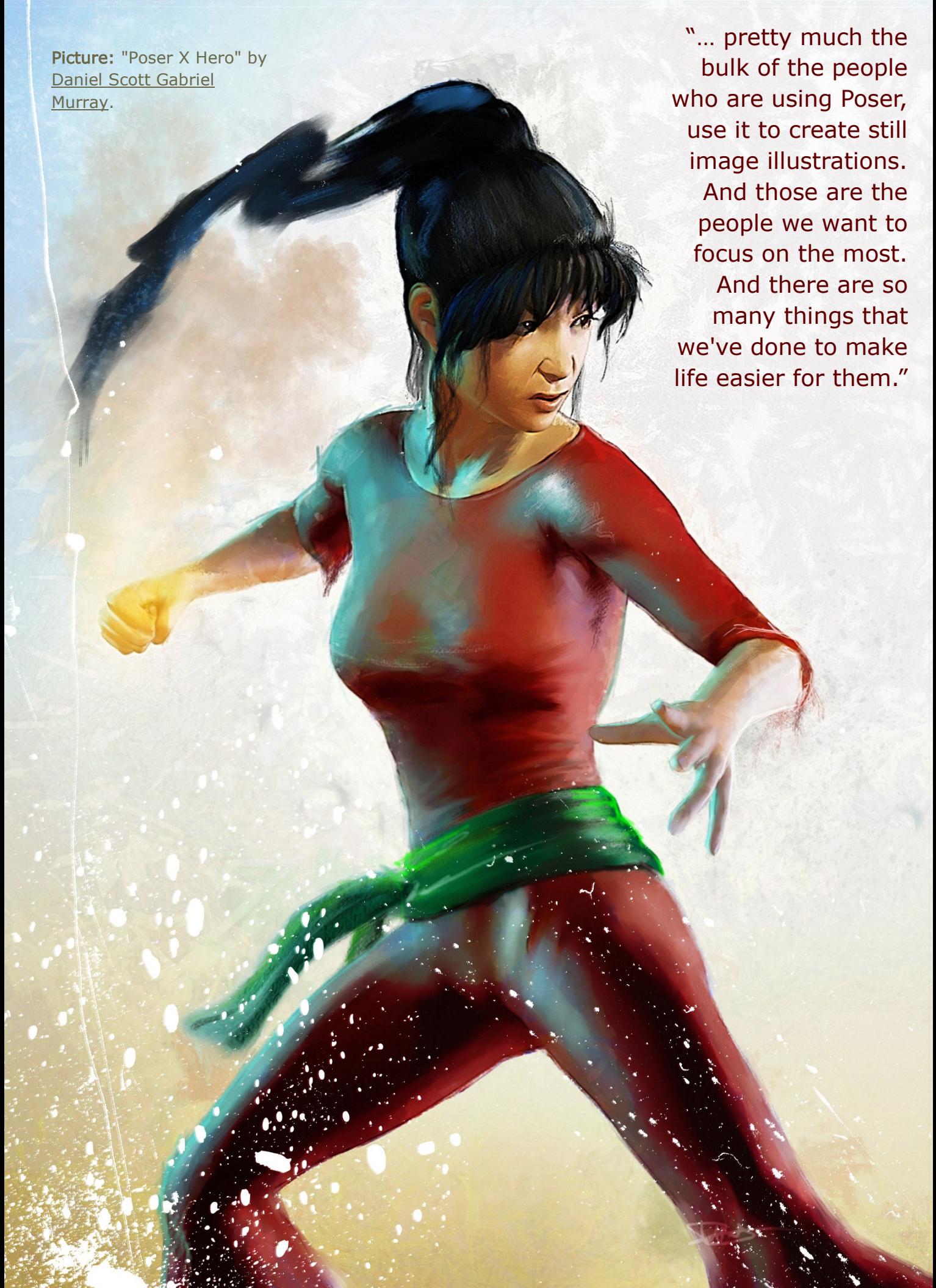
Charles: Yes, if someone's not ready for Poser Pro, then you can always begin with Poser Standard. Standard is at a price point that's a little lower than it's been before, and that's to kind of encourage people to get started in Poser. We're always looking to bring people into Poser who have never used it before, and to experience that kind of fun of using Poser. And that's kind of the core of Poser — it's easy and it's fun to use.

3DAD: Charles, thank you for your time today. It's been great to talk to you.

Charles: Well, thank you for having me.

More details on Poser 11 and its current pricing can be found at the Smith Micro website.

Keep reading, for our in-depth review of Poser 11 Pro — just a few pages on in this magazine!



Picture: "Poser X Hero" by Daniel Scott Gabriel Murray.

"… pretty much the bulk of the people who are using Poser, use it to create still image illustrations. And those are the people we want to focus on the most. And there are so many things that we've done to make life easier for them."

UNLEASH THE TITANS! (Or not…)

Poser 11's SuperFly rendering engine can be greatly speeded up by an NVIDIA CUDA-capable graphics card. The 12GB NVIDIA **GeForce Titan X** card is the best, in regard to fast quality rendering with SuperFly, iRay and others. This slot-in graphics card arrived in March 2015 at $1000, with a whopping 12Gb of fast memory. Some moan about that being overkill, others just fit two of them, side-by-side! Poser can 'see' two or more such cards.

The next step down from Titan X, according to a May 2015 *PC World* review, is the **GeForce GTX 980 Ti** — heavily based on the Titan X but with 'only' 6GB of fast memory...

"This graphics card brushes up against the $1000 Titan X's lofty performance for $350 less ... There's little reason to spend $1000 for a Titan X over a $650 GTX 980 Ti." (*PC World* review)

GeForce GTX 980 Ti cards currently list on Amazon UK for £530 to £570, and will probably drop a little below £500 by late 2016. That's a somewhat more

feasible price for freelancers and back-bedroom creative producers, even at over-inflated UK prices.

But keep in mind that a very powerful new graphics card also needs a powerful supply unit (PSU). This is an extra cost, and fitting it may involve rebuilding your PC or a new case. Intensive 3D rendering may also cause your card to run much hotter than any game will run it, so it may need extra cooling on the card. The new card and its new PSU and cooler will also raise your electricity bill over the long term.

Picture: "Erogen Sen, in SuperFly", a Poser 11 SuperFly render by Erogenesis, an artist based in the Western Sahara desert! This was rendered at a Medium Quality preset at 3600px, and yet when viewed on a 1920px monitor it looks fine — with the 'fireflies' effectively vanishing amidst the reduction. You can still just about see them, at the base of the hairline. Renders like this suggest that many with only a CPU will not need a graphics card, just as long as you can render your final picture overnight.

POSER 11 PRO
OUR IN-DEPTH REVIEW

Picture: "Beauty and the Beast" by Dave Haden. Made to test Poser 11 Pro's SuperFly engine, plus its glass reflections and light-emissive materials. Rendered using the Medium Quality render setting. 'Moisture' light-scatter on the glass's inner surface is intentional. Standard Firefly Poser materials or lights, other than SuperFly glass.

Our review of the final retail version of Poser 11 Pro, with Service Release 1, running on Windows 8.1.1 64-bit. CPU only.

Poser and me, it's been a while — since Poser 2, in fact. That early version came as a cover-mounted magazine CD, now probably on display as an antiquity somewhere in the British Museum. The freebie prompted me to buy a boxed Poser 3, and much of its growing range of royalty-free online content. Poser has come a very long way since then, and through many winding and tortuous paths. Some users partly drifted away (including me), but Poser is still a powerful beast. Like most beasts it responds best to careful handling, training and some love. So the question for this review is: can artists use Poser 11 to create more fluidly and efficiently than before? And without requiring a Ph.D in HARD WERCS (Hands in Air, Raving Deliriously, Wrestling Endlessly with Really Complex Software)? Read on, to find out...

Download and install:

Buyers can get Poser 11 Pro on a DVD through the mail. But I opted for a neat little Smith Micro Download Manager. Simply pop in your serial number and it fetches the installers, nine free content packs and the current Service Release patch. 32-bit and 64-bit versions are packed inside the same installer. The Download Manager didn't saturate my slow-lane Internet connection, but be warned that there's about 6Gb to download if you want all the free content packs. The Download Manager seamlessly picks up downloads, if the Internet connection breaks.

Poser 11 Pro installed quickly, and required a full Windows reboot afterwards. Note that the Poser 11 SR1 update also updates figure/ character content files, so it's probably best to first install Poser, then all the content packs, *then* the SR1 update. The Download Manager lets you install them in any order you want.

Those with over-stuffed PCs will want to clear out 15Gb or even 20Gb worth of old games and big media files, to free up disk space for the installers and the unpacked Poser install itself.

Third-party render plugins:

As of writing, Poser Pro's usual batch of PoserFusion plugins are available via the Download Manager (you have to enter your special plugin serial numbers in the Manager, the plugins don't show up automatically). These can send saved Poser scenes to high-end professional 3D software — Cinema 4D; Maya; 3DS Max; and Lightwave — for rendering. There are also official Vue-native ways to import Poser characters and content into Vue.

Note that Poser also has other, much cheaper, third-party render options. The Reality 4.2 LuxRender-based plugin was released in December and supports Poser 11's new Area Light and Dynamic Hair, and reportedly has new "Reality-ready start scenes for Poser". Note that Reality won't block you from continuing to use Poser while a render is happening, unlike Poser's new SuperFly render engine. See later in this issue, for our Reality 4 interview.

The similar high-end Octane rendering plugin should support Poser Pro 11 soon. See our interview with Laticis, later in this issue, for some details on Octane and its development.

Poser 11 allows OBJ export (apparently with morphed geometry, if required) and for the first time Poser Pro 11 now allows FBX export, which potentially enables rendering in Keyshot and (I think?) re-posable 3d reference characters in Manga Studio 5. So Pro 11 now matches DAZ Studio, in terms of easily getting an FBX out. Note that Poser 11's handy 1,000-page PDF manual has several pages on getting the best out of FBX exports — and it's great to see a full manual shipping with the first retail copies of version 11. Note also that Poser can generate a handy Texture Atlas map alongside your FBX.

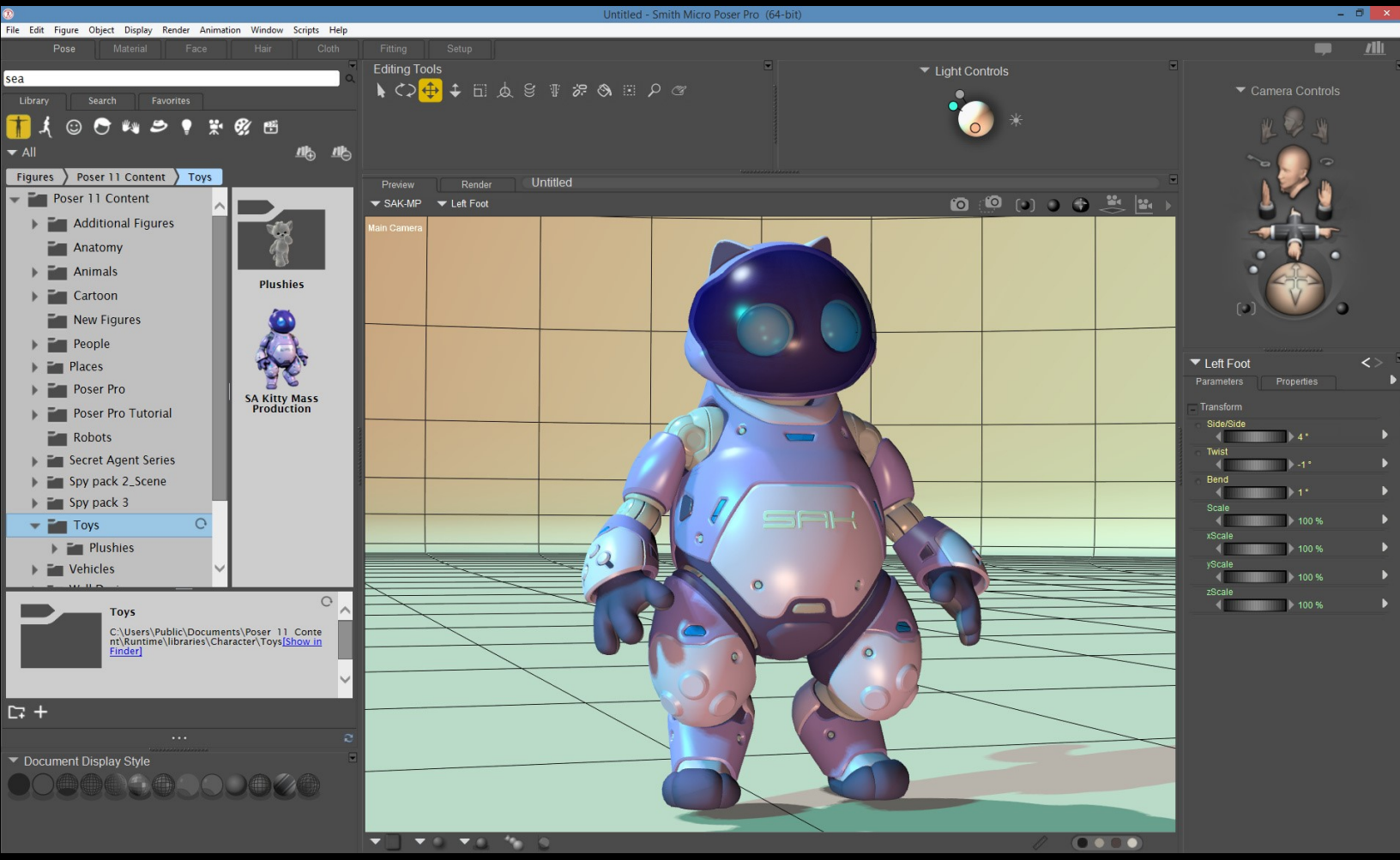
First launch:

After a simple registration screen and another serial number entry, Poser 11 Pro 64-bit loaded cleanly and quickly. The old days of lumbering system-punishing startup times seemed to have gone. But perhaps that's just because I now have a much more powerful PC and Windows version. Poser's loading speed stayed nearly as fast after indexing all of my very large content runtimes.

Opposite is a screenshot of my Poser 11 startup interface. The first thing I did was to swop the panels around to something I'm more comfortable with: content library on the left, controls on the right, lights up top. Then I made sure to save this layout [Edit | General Preferences | Set Preferred Scene | OK] to have it load each time Poser starts. You can also save UI layouts on the interface's 'memory dots', then swop between them while working.

5Gb of free content:

Then I wanted to explore the 5Gb of free content that ships with Poser Pro 11. But the Content Library started up with tiny default thumbnails. I vaguely remembered how to open up the Library configuration options (click on the tiny line of micro-dots at the foot of the Library panel) and there I boosted the thumbnail size and much more.



WHERE DOES POSER INSTALL & WHERE ARE ITS RUNTIMES?

Poser installs into: C:\Program Files\Smith Micro\Poser 11

The default Poser 11 Pro content runtime location(s) are in:

C:\Users\Public\Documents\Poser 11 Content\Runtime

C:\Users\Public\Documents\Poser 11 Content\Downloads\runtime

"... don't overlook the excellent and fun 'SA Kitty' robot cat character, found under 'Toys'".

This means that any current content or scripts runtime you have should not be overwritten.

Presumably the extra ..\Downloads\runtime has some function, but I didn't discover it during this review. To complicate matters there's also a runtime down in...

C:\Program Files\Smith Micro\Poser 11\Runtime

Having multiple runtimes is confusing when installing free plugins such as DAZ's DSON importer for Poser (which imports the various incarnations of Genesis figures and props to Poser 11). Does the Importer and its scripts package go in the main old runtime or in...

C:\Program Files\Smith Micro\Poser 11\Runtime

or in...

C:\Users\Public\Documents\Poser 11 Content\Runtime

In the end I installed the DSON .exe and its Python scripts to all runtimes, and it all seemed to work when importing a DAZ Genesis character or prop.

Those familiar with the previous versions of Poser will recognise nearly all of the free stock content that ships with the software. But don't overlook the excellent and fun 'SA Kitty' robot cat character — her lack of hair and clothes will make for impressive and yet ultra-quick initial test renders. 'SA Kitty' is found in [Content Library | Poser 11 Content | Toys] and she looks very good indeed in Poser 11's new Comic Book real-time renderer. It's unfortunate that reviewers of Poser have often tried to quickly toon 'The Creature from The Black Lagoon' instead, a monster that makes an incredibly poor choice due to its grungy dark skin textures.

'SA Kitty' is lovely, but don't overlook Poser's brand new flagship human characters. These are 'Paul' and 'Pauline' and they showcase all the new capabilities that Poser 11 can offer, especially the new SuperFly render engine. These characters might lack a certain high glamour, but they are designed as a 'soft' base on which designers can build fancier characters. Adding very 'hard' facial features, such as those seen on DAZ's new Michael 7 character, would have presumably made it much more difficult for commercial character designers to do creative work with them in future. Both 'Paul' and 'Pauline' appear to have a similar type of 'ultra-flexibility' as the popular DAZ Genesis character bases do. Although that aspect of them is obviously still being developed, and will only take off if content vendors have the imagination to look beyond their rather plain default faces.

The main user interface (UI):

I found I was familiar with 90% of the main Poser interface, though I admit I've rarely used some of the 'back rooms' such as the Hair Room or Cloth Room. Poser Pro 2014's new Fitting Room — which I think was supposed to be a Poser-native equivalent of the third-party commercial Crossdresser software — is also here in Poser 11 Pro. I tried the Fitting Room a few times in Poser 11, aiming to fit various V4 sci-fi body suits to the new Pauline character. But I just couldn't get any usable results. No doubt it's useful for content designers and developers, but artist users of Poser might look instead at the relatively simple and quick third-party Crossdresser 4 software and its per-character licences.

I noted some subtle streamlining of Poser's main user interface and a couple of new additions. The little speech bubble in the top right of the screen is a very handy Message Log. The Log can tell you when certain materials have failed to render, and also how long your renders took. The 'little stack of books' icon next to it toggles the Content Library on and off, without the user having to hunt down a microscopic little arrow or a menu item. Both of these will be very useful timesavers, and will help to keep artists in the flow of their creativity.

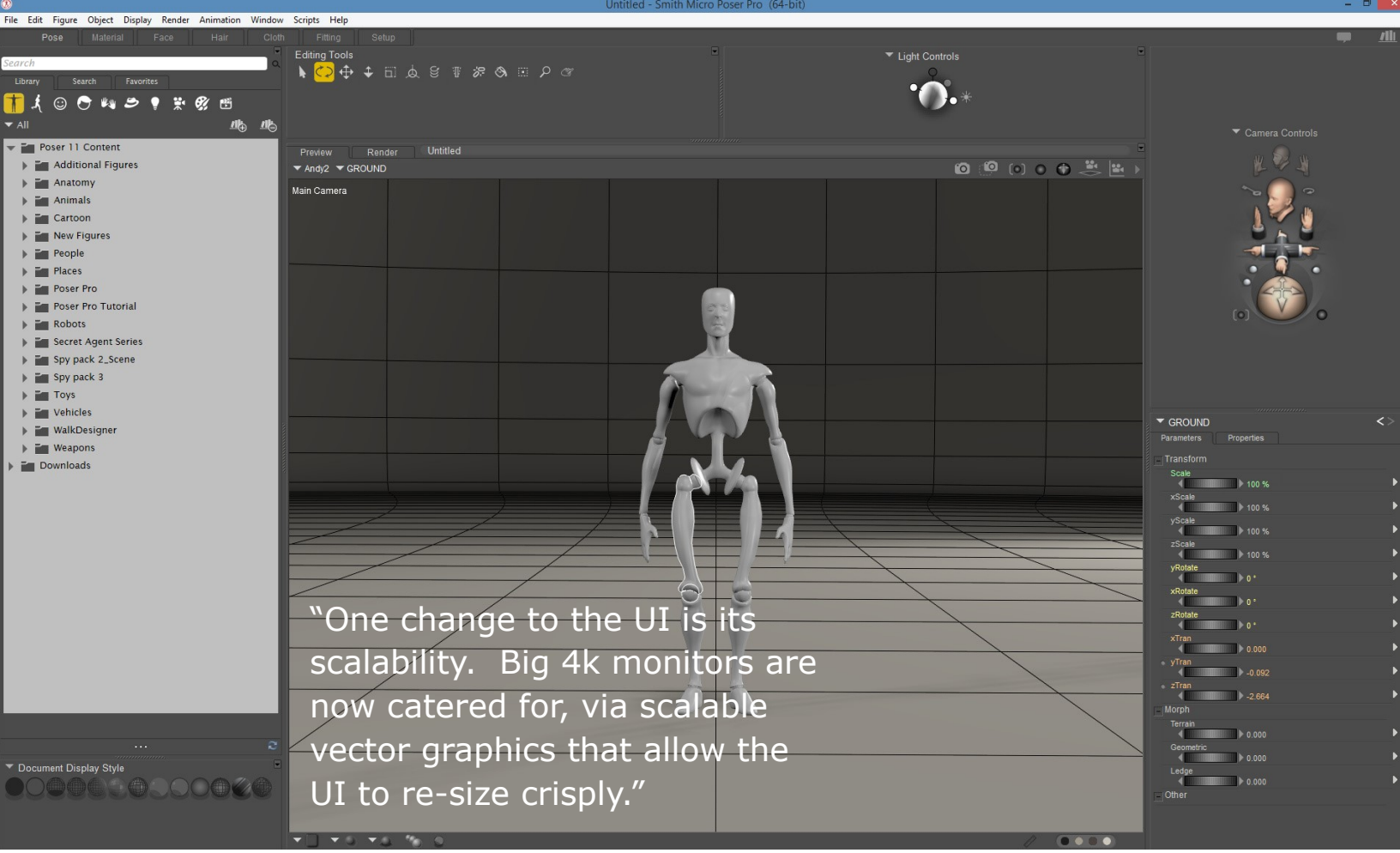
Otherwise the UI seems much the same as it was in previous editions, and I'm sure many users will welcome that.

One change to the UI is its scalability. Big 4k monitors are now catered for, via scalable vector graphics that allow the UI to re-size crisply. Those with poorer eyesight can also boost visibility [Edit | General preferences | UI Scale (change from 1.0 to 1.1 or 1.2) | OK].

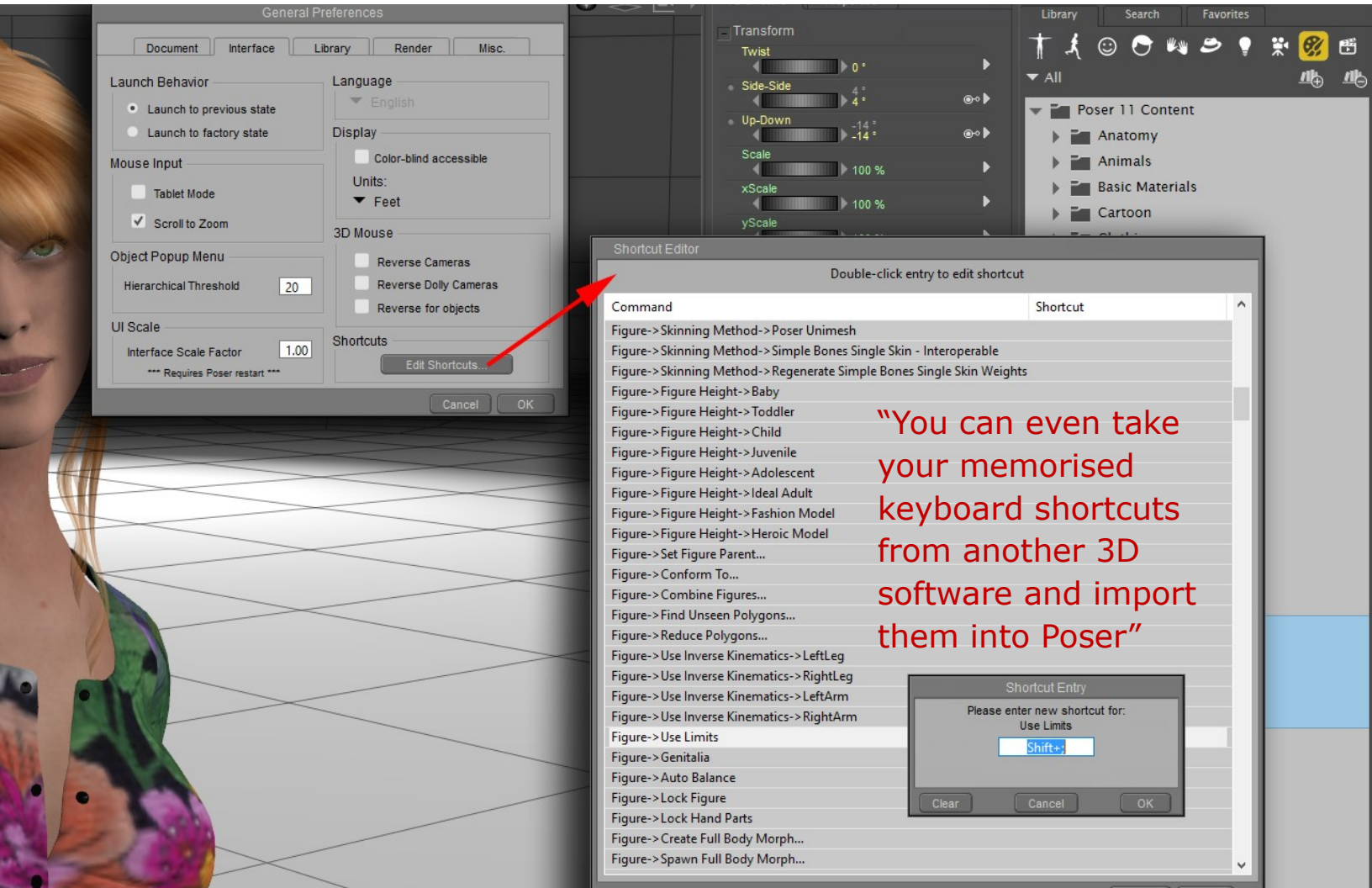
A few UI items are still bitmapped, and so go slightly fuzzy when enlarged, but overall it's a very useful improvement for older users. In a society with an increasing number of pensioners/seniors, software will increasingly need to cater for that end of the market.

New users of Poser may find that the UI takes some learning, especially the camera controls and the 'memory dots' and other cryptic little dots and triangles. It even took me a while to refresh my Poser UI navigation skills, having not seriously used the software for a while. But the UI is logically laid out, and there are only a limited number of things to actually memorise. You can even take your memorised keyboard shortcuts from another 3D software and import them into Poser (see picture, right).

All in all, the interface is nowhere near as complex as a beast like Blender, and is significantly more intuitive than even the latest version of the DAZ Studio 4.x user interface.



Poser's User Interface can be easily re-arranged. If you want the Content Library on the left, just put it there.



The new Content Library:

Each version of Poser supports 99.99% of previous content, so a good Content Library manager is absolutely vital for most advanced Poser users. It's difficult to overstate how important it is that this feature is done right.

In Poser 11 the old Adobe AIR-based content library has gone. Instead we get an HTML5 based library, apparently run inside a heavily re-skinned Internet Explorer shell. So I'm guessing that if you have IE locked down for security then you may need to delve into IE's security settings or else simply reset to IE's default settings.

Once you tell the Content Library where your old runtime is, it's initially very important to note that you need to do a search before the Indexing process will start. A little yellow disk icon will then appear, and will gently pulse, to indicate that the indexing is happening. Note also that you don't point Poser's Content Library to the *actual runtime* folder, but rather to the …/Content folder inside which the runtime folder sits. When I did that, and then did a basic search, then the little yellow disk appeared and started throbbing. Initial indexing ran from 9.30pm on Wednesday until 3.30pm on Thursday — about 18 hours. Admittedly my runtime is very large, but my third-party PzDB content library software can index it from scratch in about three hours. So, Poser takes longer than it might. But… there is a nice upside to that. The Indexing process in Poser 11 was *very light* in terms of hogging system resources (as many disk indexers do), so it shouldn't bring your PC to any kind of grinding halt. I was able to use my PC as normal while Poser's indexing was going on in the background.

When the content indexing finished I found Poser's new Content Library search functions to be quite usable, but with certain deal-breaking limitations. I started with some basic tests. I have an "Aardvark" in my runtime, and Poser 11 found it instantly. A search for "Banana" found all the same content as my PzDB third-party content manager did, and just as quickly. Knocking categories out of the search results, so as to focus results only in "Figures" and "Props" for instance, was very quick and easy.

Poser's Content Library icons can be made pleasingly large and cleanly anti-aliased. Mousing over a thumbnail reveals a little "i" icon that — when clicked — opens Windows Explorer and loads the actual Windows folder for the content. The Library also offers the ability to sort results by "Use count" or "Last used", so theoretically your favourite content should become easier to surface over time.

However, there was a critical failure to find a whole category of content via Search. For instance, Search could not return any results for "shader" or "shaders", despite many items in Materials (Dry Shaders, PASS Shaders etc) using the name "shader". Nor could a search find any materials for the SuperSleek hair shell. These items did show up in a Library Tree Browse, but not in a Search — so they *had* been indexed.

Folder Tree browsing was slower and clunkier than Search, when done across a huge runtime. Sliding down the folders wasn't as quick as it is in DAZ Studio 4.8x, but it was quite useable. Folder Tree browsing allows a user to tag items in the XML metadata via the Extended Details Panel — but this Panel does not appear for content items found using Search. Similarly the Extended Details Panel and its "Add favourites" star icon only appears for content located via a Tree Browse, not via a Search. These problems mean users can'y add Favorites from Search results. That's a big limitation for those with big runtimes they want to annotate and tag.

Another problem was that auto-suggest/auto-complete flashes up in the Content Library search box when typing a search keyword. It gets *really* annoying, and almost never makes the right suggestion. There should be an option to turn it off. Perhaps if one delves into the Internet Explorer preferences…?

So, overall the Content Library was adequate — — but was measuring up poorly against my trusty copy of PzDB. The Content Library lacks PzDB's ability to swiftly add keywords across the

results of a search. PzDB can also sort by indexing date ('most recent items first'), or can show a recently installed batch by indexing date.

As an experiment I then decided to also have Poser try to index my DAZ Studio 4.x runtime. Most Genesis content showed up there, though not all. Genesis content can, of course, be easily imported to Poser 11 through a free DSON Importer plugin and script. This was tested and it quickly and efficiently imported some Genesis 2 characters when their Content Library icon was clicked on. Such characters had some odd initial looks in the open GL preview ('butterfly wing' eyelashes and a thin 'toon lines' outline), but these problems vanished on doing a FireFly render. Clothes can be added and will conform correctly. Of course, advanced DAZ skin usually doesn't work at all in SuperFly, and sadly it seems most imported Genesis characters can't accept a one-click re-skinning with a new MAT — instead only allowing one body part at a time to be changed? Doubtless there will be quick easy solutions to this in time, such as EZSkin 3.

Finally there's a little Cloud icon in the Search panel, which is "Show remote results". This adds search results from the Web stores at Content Paradise, Renderosity and Runtime DNA. Presumably Hivewire and other aspiring Poser-friendly stores will join at some point.

Overall the Poser 11 Content Library is an improvement, but it lacks key features that would enable me to replace PzDB as my content manager. Specifically:

- It can't seem to provide search results for materials and shaders;
- Needs to offer useful browsing of all newly added content;
- Can't add favourites and keywords from/ across its search results;
- No option to turn off auto-complete in the search box;
- No direct drag-and-drop of shaders and materials onto characters.

Smith Micro is to be congratulated for at least trying to make a better Content Library, and they're actually *nearly* there for the majority of casual and first-time users. But for now I'll use Poser 11's Content Library mostly for Lights and the reliable and flexible PzDB for most other content access.

The new SuperFly render engine:

Users of old versions of Poser should be reassured that the standard Firefly renderer didn't go anywhere — it's still there in Poser 11. But now there's also SuperFly, Poser's new streamlined implementation of Blender's powerful 'Cycles' open source render engine. Getting high quality rendering is now as simple as selecting SuperFly as the renderer, setting a render quality preset, and pressing 'Render now'. That's it. Lights and materials will be auto-converted for you in a few seconds.

SuperFly's simple and straightforward integration is a big leap forward for Poser. Rendering with Quick Preview and Medium presets is perfectly feasible even on a CPU-only domestic PC, more so than with DAZ's similar iRay renderer. SuperFly can run fairly speedily on the PC's main CPU processor, or for a faster render it can use the GPU in a standard modern NVidia (CUDA capable only) slot-in graphics card. Blender are said to be working on an early ATI GPU version of 'Cycles', but I guess it may be a while before that shows up in Poser.

I'm told that to make any kind of worthwhile gain your graphics card needs to be *very powerful* and in particular to have *masses of fast memory*. So a low-cost mid-range Nvidia gaming card from Maplins or WalMart may not give you much of a boost, and might be a waste of money. Those with twin graphics cards (Titan X is a name I hear a lot) should note that Poser Pro 11 can support two GPUs, and possibly more. But if you have the money for such high-end cards (and the massive electricity bills they'll give you over the years) and a fast broadband uplink, then an account with a Poser-friendly online render farm might be a better option.

This review's basic test of the new Pauline character, using the Firefly renderer, set at 'Final' — which is one notch below the very highest quality auto-setting. The masked PNG took **26 minutes** at 3600px.

The new Pauline character using the new SuperFly renderer, set at **Medium Quality, Subsurface**— which is one notch below the very highest quality auto-setting. The masked PNG took **8 hours** at 3600px.

So, with SuperFly Poser should now be able to comfortably keep pace with DAZ Studio's iRay renderer. There are two reasons for this. Firstly, Smith Micro have committed to a speeded-up cycle for Poser updates. Secondly, the 'Cycles' engine is fully open source and has a huge user base, so I'm guessing that Poser 11 users may see some nice year-on-year speed increases and perhaps also new features.

We're already seeing free shader packs (satins, for instance) appearing specifically for SuperFly, and are likely to get many more in 2016. Especially since people can 'borrow' the many open-source Blender shader recipes, which are Creative Commons. Shader gurus should note that Poser Pro already has a collection of basic shader 'recipes' shipped with SuperFly — developers can make easy-to-use commercial materials and shaders packs on top of these.

The other very nice thing about SuperFly is that it can use default Poser materials, but blend (yes, *blend*) these with its own materials. It holds both materials within one root shader node, and then switches between them 'on the fly', depending on how you choose to render. I don't think many people realise that yet.

SuperFly render tests:

So, how does SuperFly run? As I said earlier — you just select 'SuperFly', select a render quality preset, and hit 'Render now'! I had thought a user might need to re-light the SuperFly scene, or spend time setting up new lights. But preset Poser lights are auto-converted instantly and will work in a SuperFly render, and faithfully too.

So, how good are SuperFly's visuals? To do a real-world basic test of SuperFly I first loaded the new Pauline character, plus Pauline's standard conforming jacket and top. I popped some vaguely futuristic materials onto the jacket and fabric top, and added the third-party SuperSleek hair. I set up two simple lights and made one an Area Light (at 25% power). I made the scene a little dark, since I anticipated doing postwork on the portrait in Photoshop later — where it's easy to raise dark shadows, but difficult to add detail to blown-out highlights. I'm not a 'render purist' who insists that everything be done in the raw render. See the previous pages, for the straight results.

All rendering was done on a fast modern (2014) AMD quad-core CPU. No suitable Nvidia GPU was available — I have an older NVIDIA card gathering dust in a drawer, but it's not powerful enough for Poser 11. I found SuperFly to have a usable speed on my CPU, in contrast to DAZ Studio 4.8's iRay — which I've found to be un-useably slow to get a completed render with.

1) Medium Quality, Subsurface: My first test render used the 'Medium Quality, Subsurface' render preset, since I figured that would best show off the quality of Pauline's skin. It took about **eight hours** for a 3600 x 2400px picture at 300dpi. I'm guessing the addition of the Area Light and its shadows increased the render time by several hours — a simpler light with simpler types of shadows may have rendered quicker.

2) Very High Quality, Caustics: After a clean reboot of the PC I tried the same Pauline portrait with the preset 'Very High Quality, Caustics'. I left the render running overnight, but after eight hours it only was at tile 12 of 2126 tiles. On that basis it would have taken about **two months**! I cancelled the render, but found my PC very sluggish for the next three hours. It seems that Very High Quality settings — especially with caustics and volumetrics — are only for those with very fast graphics cards.

3) Very Fast Preview: I then rendered 'a quickie' using the 'Very Fast Preview' preset. This gave me the 3600px render at 300dpi in **35 minutes**. I was surprised how closely the result superficially matched the eight hour 'High Quality Subsurface' render (see the raw Fast picture opposite). Just a few 'sparkly' edges and fireflies in shadows, only seen when zooming right in. The render's fireflies can be seen at full size but effectively vanish when the image was seen in full at a 1200px screen height. Frankly, I would consider 'Fast' or even 'Very Fast Preview', at 4000px — and with some very light Photoshopping — if my picture was only going to be seen on the Web or in PDF, on a 1200px monitor or on an average hand-held tablet.

The new Pauline character using the new SuperFly renderer, set at **Very Fast Preview**. The CPU render took **35 minutes** at 3600px. ‘Fireflies’ in shadows and around the nose all-but vanish when seen at page size.

Firefly comparison: For comparison I then rendered the exact same camera view of Pauline using the normal Firefly renderer, set at 'Final' — which is one notch below the very highest quality auto-setting. That render took just **26 minutes** at 3600px, with raytraced shadows. Firefly's soft shadows are nice, but the eyes and skin are obviously much less convincing than in the SuperFly render. There's less contrast on the hair, and also more fringing on the flyaway hair in the PNG cutout. See page 34 for copy of this Firefly picture.

Rendering like Reality 4.x: It's also possible to render in a manner that Reality users will be familiar with, where the render just 'goes on and on', and then you cancel and save when you think enough grain and sparklies/fireflies have been taken off the picture. Check the official RDNA Poser forums for posts by Poser expert Bagginsbill, for these settings.

Background/Queue: I was rather disappointed not to be able to 'Render in background' with SuperFly, like you can with Firefly. You can't continue to use Poser while making a SuperFly render, but Poser will generally leave your PC usable for other tasks. In that sense it's much the same as DAZ Studio with an iRay render.

But I guess that many will run their final SuperFly renders overnight or while out at work. In that case it's a pity the Queue Manager can't queue up eight hours worth of different SuperFly renders, since it doesn't yet support SuperFly. That's another area where the plugins Reality and (I'm guessing) Octane are currently be superior to SuperFly?

Fixes for older content: There are a couple of basic tweaks that all Poser 11 users should learn. SuperFly can sometimes render glassy/ waxy eye surfaces on older or Genesis characters, and this is apparently fixed by unplugging or dialling back the reflectivity and/ or specularity in the eye materials. DAZ-only skins and a few other SSS or complex surfaces will sometimes render as plain black or white. Just swop them for an older non-SSS skin that works, or (apparently, according to those on DeviantArt) change the diffuse material color to white for each body surface. Doubtless there will be a Python script or two to solve such matters, in due course. For instance, Snarlygribbly's EZSkin 3 script is currently in rapid development, and will solve such problems in a few clicks. For now, note that Poser 11's new Message Log is very handy when troubleshooting such problems, telling you exactly which materials SuperFly couldn't handle when you do your small test renders.

There is also an obvious small problem which happens when making head and shoulder portraits. Clothing, such as high collars, will often cast very hard-edged shadows onto the skin of the neck. You can see these on the Pauline test portrait a few pages back. According to the forums this can apparently be fixed by either subdividing the character mesh, and/or scaling up the offending light.

Glow: It's also handy to know that *anything* in a SuperFly scene can become its own light, and cast light onto other surfaces. Glowing neon tubes, wall-lights, headlights.

Unfortunately adding glow involves fiddling in the Advanced Materials room and can often just result in a bright flat colour. Hopefully Poser 11 will soon have something like the 'Real Lights For DAZ Studio iRay' pack, in which one simply drags a shader preset onto a material to turn it into an emitting light (while retaining a glimpse of its underlying texture). I've made such a glow preset for myself, which you can see in action in the picture that opens this review. But the preset is not yet ready for prime-time, so I can't share it here. Doubtless other Poser users will mix up better ones, very soon.

My rendering experiments in Poser 11 Pro suggest that the new emitter lights can't affect scene atmospheres — so you can't have a lamp with a corona of light that bleeds hazily out into a foggy atmosphere. Or a set of torch beams slicing through the fog. So far as I can see adding that kind of light spillover / beam to a render still needs either Photoshop postwork or faking it by using a very cleverly designed prop.

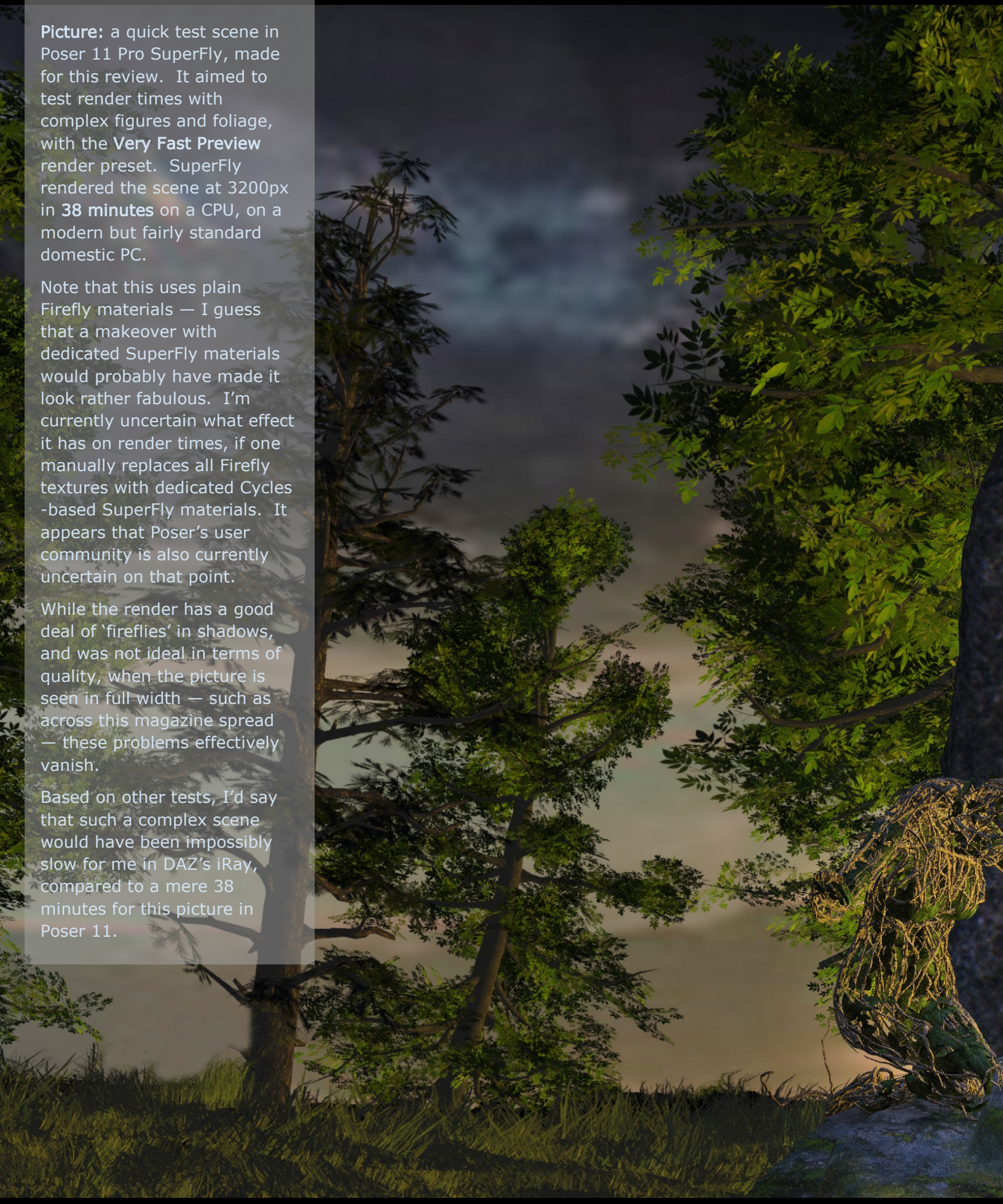
Picture: "Poser X Hero — Male" by Daniel Scott Gabriel Murray.

Picture: An experimental render made for this review, to test SuperFly's render speed with a full-scene fog prop and with multiple light-emitting materials present in the scene. Light emitting shaders were added to the bike rider's eyes, the bike's engine porthole, and to the traffic lights. It can be very difficult to control the strength of the light emitting effect under such circumstances, ensuring that it doesn't completely wash out the underlying textures.

Postwork in Photoshop added the headlight's wavering light streaming out into the fog, some faint engine exhaust, and colour-shifted the scene from a green pea-souper to a more pleasing soft blue. Scene props are by Stonemason. Render time was about **three hours** in Medium Quality at 3600px.

In comparison, the Firefly render of the same scene failed to provide much more than a silhouette...

"... the new **emitter lights** can't affect scene atmospheres — so you can't have a lamp with a corona of light that bleeds hazily out into a foggy atmosphere. Or a set of torch beams slicing through the fog. So far as I can see adding that kind of light spillover / beam to a render still needs either Photoshop or faking it by using a very cleverly designed prop."



Picture: a quick test scene in Poser 11 Pro SuperFly, made for this review. It aimed to test render times with complex figures and foliage, with the **Very Fast Preview** render preset. SuperFly rendered the scene at 3200px in **38 minutes** on a CPU, on a modern but fairly standard domestic PC.

Note that this uses plain Firefly materials — I guess that a makeover with dedicated SuperFly materials would probably have made it look rather fabulous. I'm currently uncertain what effect it has on render times, if one manually replaces all Firefly textures with dedicated Cycles -based SuperFly materials. It appears that Poser's user community is also currently uncertain on that point.

While the render has a good deal of 'fireflies' in shadows, and was not ideal in terms of quality, when the picture is seen in full width — such as across this magazine spread — these problems effectively vanish.

Based on other tests, I'd say that such a complex scene would have been impossibly slow for me in DAZ's iRay, compared to a mere 38 minutes for this picture in Poser 11.

The new real-time Comic Book Mode:

The new SuperFly super-realism is one key reason why a user would buy or upgrade Poser. Professional graphic novel creation for the Web has now become another reason. There were graphic novel and toon features in the earlier version, but these have matured in a big way in Poser Pro 11. This key new feature is easily accessed via the new real-time Comic Book Preview settings panel. The very simple panel controls the OpenGL preview of the stage area, and it fits a character with a geometry-shelled (ink-line outlines are applied to your character or prop) and anti-aliased (all 'the jaggies' are smoothed off the lines) toon look that renders in real-time. Poser 11 no longer requires a graphics card to anti-alias its OpenGL render.

The resulting Comic Book Preview provides a luscious and fairly convincing real-time 'comic book look', and for many artists this single feature will be worth $499.99 all on its own. Once you confect a good comic book style, which can be done quickly with the right flat lighting and some well-chosen toon materials, then the full render is output by selecting 'Preview' instead of Firefly/SuperFly. The output render is a cleanly masked PNG, perfect for dropping into a page of comic-book frames.

Shown opposite is a basic render of Pauline made with three simple lights, and the real-time Comic Book Preview options turned on, and Specularity gloss on the clothes pushed down toward black. The render took just 15 seconds at 3600px and 300dpi. The legacy FireFly textures mean that it's not ideal, and most photo-real characters and props will look very unconvincing trying to masquerade as hand-drawn comic frames. Any serious comic-book reader would laugh and point at them, basically.

Some Comic Book toon outline features do still need a little refining. At present, ink outlines are hard black only, and they don't respond to a strong light by fading out to grey or getting thinner. A way to save Comic Book panel presets would also be very useful, and to switch easily between these and to share them online.

Older methods for toons:

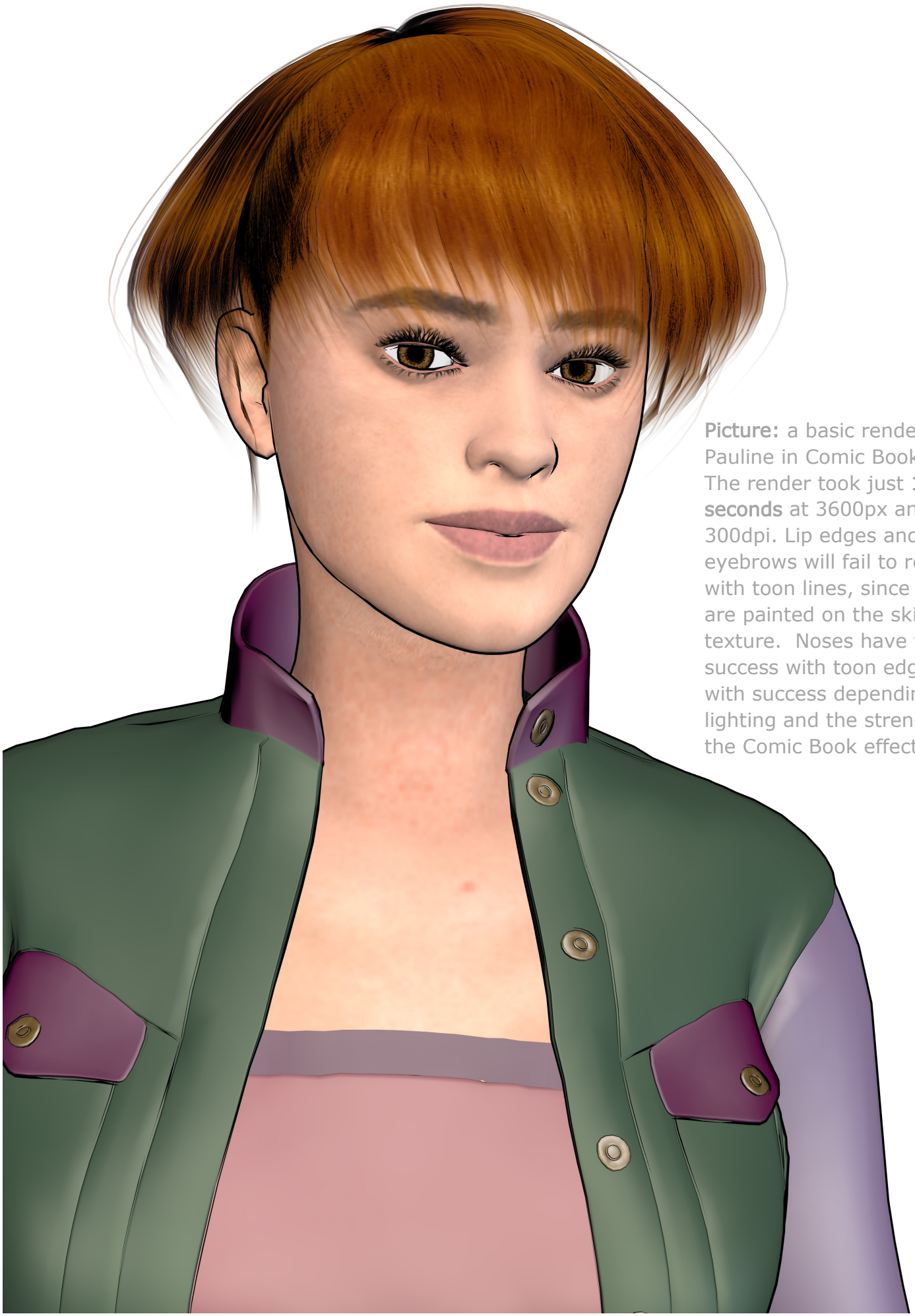
Note that a user can still add clean and configurable toon lines across all materials on a character, simply by running the [File | Run Python Script | … | Wacros | toonShade.py] script — after first selecting a material in the Materials Room and then exiting it. This adds uniform 'toon' lines across the character in post-render processing, and must be used along with the render options in the Render Settings dialog box [Toon Outline-on + Shadows-off + Shadows-only].

There is also Bagginsbill's free LLToon shader. This is a .MT5 material node setup for Poser. Those who don't want to apply and tweak LLToon by hand can just install the preset version called LLAnime, which has a standard anime look set up for you in the material nodes, and also get its LLAnimeAll.py script which converts the whole scene. The latest bundle for all these is here. This has been tested for this review, but was found to only partly run in Poser Pro 11 — changing only one material node rather than running replacements across the whole character. I suspect this is part of the general problems all old Python scripts have when encountering a new version of Poser.

Note there are several *really* 'old school' ways to get a toon effect, which still work in Poser 11. One is simply to collapse all the z-depths into a single wafer-thin layer. There's a free Poser Python script for that which works in Poser 11, but note that it subtly changes a character's edge outline shape — and so it can't be composited with other renders in Photoshop. But the results from doing this *can* still be interestingly combined with Poser 11's new Comic Book Mode.

One final old method is the use of good toon shader / tone sets, which exist for popular toon characters such as Star!, Sam & Sadie, and various Japanese anime-style girly characters such as Chichibel.

However, none of these is as easy as Poser 11's instant new real-time Comic Book Mode.



Picture: a basic render of Pauline in Comic Book Mode. The render took just **15 seconds** at 3600px and 300dpi. Lip edges and eyebrows will fail to render with toon lines, since they are painted on the skin texture. Noses have varying success with toon edges — with success depending on lighting and the strength of the Comic Book effect.

Picture: a test for this review, of the Comic Book Mode with flat lighting and toon shaders. Toon edges on the goggles are poor, but that's probably to do with the modelling.

☆ Are you interested in this quality toon character? We have a free Digital Art LIVE podcast interview with **Lady Littlefox**, about the development of her new Star! character for Poser.

Star! with Poser toon shaders in real-time:

Seen opposite (centre) is my real-time Poser render of the popular Star! character, with toon materials applied and a flat lighting preset, plus a close-up face from the same character seen Photoshopped into the background.

Poser 11's Comic Book Mode's edge 'ink outlines' can be tweaked for width, for characters and props, by slightly increasing the [Materials Room | Advanced | Geometric Edge]. So, for instance, a character's body outline can have a heavy inking line width while their shirt has a much lighter inking line width. Ugly black shadows can be mostly removed by tweaking the Comic Book Mode's Threshold dial and/or by creating a much flatter lighting style.

Note that [Comic Book Mode | Geometric Edge Lines | Black & White] can be combined with a Sketch render from the Sketch Designer, and the effect will appear only on the toon lines. The Soft Charcoal sketch preset gives an especially nice edge. Some props and clothing seem reluctant to take a toon edge — note the goggle edges in the Star! picture seen opposite — but that may be down to weak modelling. The clothing was a freebie, auto-coverted for Star! by Crossdresser.

Some props can't be used in Comic Book mode, because they have Vertex axis guides that show up in OpenGL, and these positioning guide-lines cannot be removed in any way. The glasses prop for the popular Star! character, for instance, will cause green guide-rods to stick out of Star's head. Not good! It's important that vendors of future toon characters avoid such problems.

Hopefully we will now see Poser content creators provide paid 'Poser comic book makeover' options for suitable Poser characters, such as those of the Nursoda and Star! range. These would include: MATs for intelligently and instantly applying high-quality toon shaders (like those seen opposite) across a character; eyebrows and lips as geometry — which will flex along with expressions; several flat lighting presets; and toon MATs for popular clothing and props for the target character. Who knows, we may even see Poser's stock 'Monster From the Black Lagoon' character get a proper toon look, one day!

Poser's Sketch Designer:

The Sketch Designer room is still in Poser, though relatively hidden away in [Render Settings | Sketch | Sketch Designer ...] and it doesn't seem to have been changed or improved in Poser 11. The history here is that, very early on, Poser gained impressive auto-sketch capabilities via its Sketch Designer. Sadly Sketch Designer's ten main sketch presets became less impressive as the years passed, overtaken by the superior and quicker Google SketchUp — and anyway few users seem to have looked beyond these presets to the wider range of possibilities that Sketch Designer offers. There appears to be almost no free online packs of sketch presets online, which seems like a great lost opportunity. Having said that, though, the same is true even of SketchUp's sketch presets. So I guess the lack of interest is down to the mainstream's overwhelming desire to see 3D done as ever-more photoreal renders rather than as drawing and painting.

Yet there is still potential here for using Sketch in Poser 11. I found that sketch effects can be applied *just to the lines* of the Comic Book Mode, making hard ink lines into softer charcoal lines and more.

Another powerful, but often overlooked, option of Sketch is the ability to export the sketch strokes as a Corel Painter script. This enables scripted replication of the sketch using the natural media brush strokes in the powerful Painter software. In future it could be interesting to see Smith Micro add similar export scripts, perhaps even for Manga Studio's outstanding inking brushes?

I'd strongly suggest that Poser could also very usefully add a future PoserFusion plugin for SketchUp, thus allowing Poser's many comic book artists and illustrators to render Poser scenes using SketchUp's industry-leading sketch styles.

Poser's Python scripting:

As previously stated, in any brand new version of Poser some of the Python scripts always have problems. The community usually solves these in a matter of months after release. Python scripting in Poser is robust, mature and very useful — and also well documented both by the PDF that ships with the software and by PhilC's 'Python Tutorial, Manual for Poser'.

Some utility scripts ship with Poser. I tested some of these, such as the native Python-based Texture Utilities and Lights Utilities — but they gave "Process cancelled!" errors. The Render Passes utility script also gave a "poser.error: A file error occurred" error. These problems appeared to be confirmed by posts I found on DeviantArt. Some other scripts ran fine, such as 'Delete all Lights' and some third-party scripts.

Installed scripts can be added temporarily to the Python Scripts Palette. But such additions only last for the current user session. There is an easier way to access your favourite scripts. The manual states…

> "You have the option of placing additional Python scripts into the **:Runtime:Python:PoserScripts:ScriptsMenu** directory within your Poser installation; all scripts placed into this folder will be accessible within Poser from the Scripts menu".

Note that this means that they are added to the top [Scripts] menu and NOT down on the Python Scripts Palette. The particular ScriptsMenu runtime folder required for doing this is: C:\Program Files\Smith Micro\Poser 11\Runtime\Python\poserScripts\ScriptsMenu\FavoriteScripts

I was able to run the following useful Python scripts in Poser 11 from there:

- PhilC's "script to apply same MT5 to all materials" — quickly removes all materials on a character, replaces them with a single .MT5 material of your choice. Could be handy for basic toon re-skinning of a reluctant character?
- Z-flatten.py — flattens all the z-depths to form a single 'toon' layer.
- Scene Toy 2014 — easily select multiple scene items, and one-click to conform all clothes to a character.
- EZMat 1.2 — useful for working with materials and shaders. I found that it could only be launched via Scene Toy 2014, but it wasn't tested in full.
- PhilC's Balance / Set Ambient — quickly reduce a background character's overall ambience, to blend/fog them into the scene. (Note that the official and similar [Scripts | Material Mods | Change Gamma] didn't work for me).
- Snarlygribbly's Snow Machine 2 — add adjustable snowfall over characters and props. Lots of fun, especially at Christmas. Also rather good for that 'I want to throw a bucket of custard over my comedy character' moment.
- Light Control — adjust the brightness / falloff of all the lights at once.

Note that the forums report that popular plugins, such as Snarlygribbly's EZSkin, are currently in development for Poser 11 (as EZSkin 3). EZSkin 3 should then, in turn, enable plugins such as the Oxygen V4 skin plugin in Poser 11.

Posing and prop/light handling:

One of Poser's most tedious aspects is character part selection and clothing conforming. To help me out I installed the third-party python utility panel scripts 'Scene Toy 2014' (paid, at Runtime DNA). Scene Toy shows a simple listing of what's been placed onto the stage, and lets you easily select multiple items for deletion or hiding. It can also conform a clothing range to a character in one click. Check out RuntimeDNA for many more Poser scripts, both free and paid.

In Poser 11 there's a new Direct Manipulation tool for characters, for which I had high hopes. But I could only get it to do a sort of unpredictable semi-tilting of the character or body parts, and frankly I found it unintuitive and baffling. Its brief entry in the manual suggests

there's quite an art to understanding it and working with it. I'm looking forward to seeing a detailed video showing exactly what it's supposed to do and how.

The new customised dial palettes, on the other hand, are a new feature that's very useful and blissfully easy to use. These can be found under [Windows | Customised Parameter palettes | New]. A content vendor can save a set of custom dials on a palette along with a character, enhancing the value of a buyer's purchase.

Poser for specialist users and animators:

Poser 11 also has new tools for specialist users. The new 'virtual tape measure' may appeal to those involved with crime scene recreation, theatre stage-set design, archaeological / heritage recreation, teaching, and with Microsoft HoloLens VR experience design. Poser 11 Pro seems stable enough for such professional use, even in this initial release — I only managed to fatally stall Poser 11 once, when trying to render my own stupidly-complex custom sketch render.

Animation has always been possible with Poser, with its robust animation tools and built in lip-sync. Poser Pro 2014 pleased animators by adding bullet physics, thus allowing characters to have 'body jiggle' as they moved. Poser Pro 11 now adds Microsoft Kinect 1 & 2 motion-cap, .MP4 export, Alembic/FBX/Collada support, network rendering and more. These, and the new real-time Comic Book Mode, are likely to make Poser interesting to small commercial animation production studios. Unlike its cost-equivalent real-time rival iClone, Poser also has the ability to use any of the vast ocean of Poser content without time-consuming conversion and re-rigging. The only problem that small studios may need to solve, in any move to using Poser, is consistently controlling and softening the shadows.

Save to .PSD, with z-depth and shadow passes:

In Poser 11 Pro Firefly renders can now be saved to a layered .PSD Photoshop file. Note that saving a .PSD is not available for SuperFly renders, and that it's a Pro-only feature. The .PSD layer options need to be selected before rendering. They're tucked away and rather cryptically named, down at the bottom of [Render Settings | Options | Auxiliary Render Data]. In the .PSD you can include a useful masked z-depth layer, although note that it's not useful for scenes with transparency-mapped foliage (leaves and petals show up as ugly square blocks).

There is also a shadows layer. To get the shadows layer, you select the optional and even more cryptically named 'custom_3' channel — but you have to make sure that no materials are connected with its node. The shadow layer is probably hidden away like that because it isn't actually very useful —it places and merges the shadows onto a white background, rather than laying *just the shadows* over a transparent background.

Note that you can also get a shadows-only layer out via the Render Settings [Render Settings | Options | Shadows only], and these are lighter in tone than those in a .PSD shadow layer taken from exactly the same scene.

Either way you get your shadows layer out, it still takes some juggling in Photoshop to make such a layer useful for shadows darkening in compositing — try: [knock out white to transparency | invert | blend layer in multiply mode] though even then you may still get ugly fringing.

Poser Pro 11's other new features:

Poser 11 apparently also offers improved OBJ import (absolute scaling) and export (integral morphs); and the ability to export a partial Poser scene.

There are now customisable keyboard shortcuts. So if you've memorised the shortcuts for other 3D software, you can map these to Poser and speed up your workflow.

Some new features were not encountered while testing: the Auto Save feature; new movie fil-types; the Actor Selection History; the 'export partial scene' option; new layered skin materials (you can add sub-surface tattoos and scars).

Some features were encountered but couldn't be figured out, such as: the un-cooperative Fitting Room; the seemingly un-configurable sidebar 'tagging option' in the Content Library; and the baffling Direct Manipulation tool. The new caustics and volumetric rendering were far too system-intensive to be tested on a CPU-only PC.

Many leading Poser users adapt Poser's figures or make paid royalty-free 3D content, especially clothing, around the various base figures. This review doesn't address the vast number of features and changes aimed at such content-makers, since it's aimed at artists. But there are obviously lots of changes and new additions intended to make their work easier. Such users should note that the plain-looking new Pauline and Paul figures are actually super-flexible, kind of like DAZ's Genesis series. It seems one can radically and very easily shape them in ZBrush, output the morphs equally easily and sell them.

Poser Pro's list price:

Pro is moderately expensive if you buy at the full price of $499.99. But note that *bona fide* students and teachers can get special low-price academic deals on Poser, and that there are occasional big discount sales at Smith Micro.

A total beginner who pays $499.99 might also budget another $400 for high-quality core content (popular character bases, clothing, animals or vehicles, some preset scenes, a utility script or two) and perhaps $100 on some training and webinars. But that $1,000 would pretty much get them all set up — and without having to spend more on third-party rendering engines, content library management plugins, or unlocking new 'packs' of advanced features.

Of course, $499.99 (or even $1,000 spent on Poser + content) would be a small capital investment for a professional comic-book artist, designer or pre-vis/concept illustrator. In the English-speaking world such investments in one's tools can usually be written off against tax. In terms of time I guess you'd budget about a month in total, for install, configuration and then the training time. There's a lot to learn, and maybe I'm underestimating here — but it's certainly nowhere near the time you'd need to learn a 3D software beast like Blender.

The only further costs might then be a new PC power supply unit and a $1,000 Titan X graphics card or two for faster renders (note that GPU support is a Poser Pro-only feature). But, if you're not also heavily into videogaming or editing movies, then it's probably cheaper to run a final eight-hour render overnight on your CPU.

Conclusion:

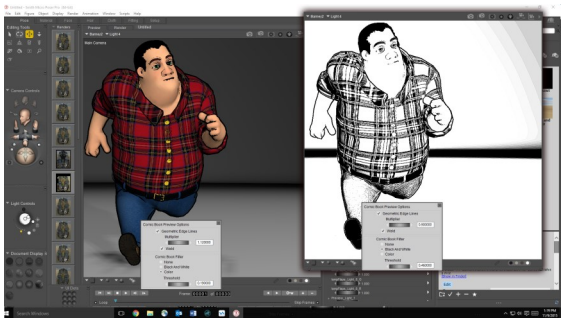
This new version of Poser Pro is superb in its overall maturity, as any software should be after ten iterations. Like all its versions the new Poser has its quirks, omissions and niggles that will probably soon be patched or fixed by the users.

The new SuperFly renderer means that Poser is very much 'back in the race' against DAZ Studio and its iRay engine. Indeed, Poser is now racing level with DAZ — with new support for FBX, Alembic and a great many other new features.

Poser's SuperFly 'Very Fast Preview' preset gave me useable large renders of complex scenes in around 30 to 40 minutes — and on a standard domestic CPU. DAZ's iRay just can't match that, on my PC. The quality wasn't ideal, but the renders were nicer-looking than the old Firefly.

Smith Micro has also made a move back to Poser's roots, with real-time toon and line-work output that's even more usable for professional comic creators and illustrators. But it's not an either/or choice — Poser's new-found ability to skip between the photoreal and the hand-drawn look should appeal greatly to multi-tasking creative freelancers with demanding clients.

Once a few bugs and oversights have been squished, and there's a 60-day demo and some fair reviews out there, many people will try what is now a very appealing creative package. Many who can't afford the fast graphics card needed to use DAZ's iRay will then go on to pick up Poser 11 Standard at around $130 (assuming a 30% 'summer sale' discount). For comics makers that should be a no-brainer purchase. It will also attract back former Poser users who had drifted away to DAZ Studio or to iClone. •



Pictures: Smith Micro's press pack screenshot image (above) for the Comic Book Mode doesn't do the effect justice. Poser can easily give a very professional comic book effect, as seen here with our renders of Poser's SA Kitty character, in Comic Book Mode (flat lighting) and the Sketch Designer charcoal preset on the toon lines of a B&W Comic Book render (flat lighting).

LATICIS

This issue we survey the new and improved high-quality render engines, including Poser Pro 11 with SuperFly. But fans of DAZ Studio's iRay are not being neglected! Here we interview 'Laticis' (**Adriano di Pierro**), who has recently compared the output of the DAZ Studio plugin Octane with DAZ Studio 4.8's new iRay render engine. He's also produced a fine set of new pictures since we last interviewed him. So here's a lion-sized interview on DAZ and Octane, plus some Vue, to balance our Poser coverage.

DAL: Adriano, welcome back for a new interview. And thanks for doing this in-depth interview with us over the Christmas break.

Adriano: Hi, and Happy New Year. Thank you for the opportunity for another interview.

DAL: So, before we get into the details on the new render engines, how are things for you down in Darwin, Australia? Has the Internet access speed improved any, in the 18 months since we last interviewed you? Obviously access speed is a key thing, for freelancers who live in relatively remote places.

Adriano: The temperature is very hot, for starters, our wet season build up has been tormenting us and any rain is a blessing. On the Internet connection, yes, there have been developments. Australia rolled out the NBN (National Broadband Network), which made its way to my area! Download isn't *that* much faster — but it's stable. The big difference for me has been the upload speed, which makes a big difference to a freelancer.

DAL: So you've been using the Octane renderer, which is a commercial plug-in for DAZ Studio, since the beta back in July 2013.

Picure: Millennium Big Cat 2 in DAZ Studio 4.6 with Octane 1.5. A test to see how far fibre hair could be pushed, which crashed Laticis's very powerful PC. Finished in Photoshop CS6 and NIK Tools.

ADRIANO DI PIERRO ('LATICIS')

AUSTRALIA

DAZ STUDIO 4 | OCTANE | VUE | PS

WEB

Two and half years later, do you feel that you've 'broken through' the technical barriers that impede so many 3D artists, with Octane? I mean the barriers that any complex software erects for us — when we really just want to access our creativity and imagination, not wrestle with things like a tangle of shader nodes, morph targets or cloth fitting scripts.

Adriano: I purchased the Octane Beta for $99, many moons ago, but struggled with the interface. Then the DAZ plugin became available and everything changed for me. Do I feel as if I have 'broken through'? No, but I don't feel I have with DAZ Studio either — and I have been using that much longer. That's what makes the 3D industry fascinating, you can endlessly explore, develop and test your skills in your applications of choice.

DAL: Yes, that's true of Photoshop too. One can using it for 20 years, and be still learning.

Adriano: We are not only limited by our imaginations, but by our skill-set — and our skill sets only comes from our dedication and practice. You get a minor breakthrough, when bits of the puzzle 'fall into place' — but then you keep moving forward, onto the next piece so-to-speak. Those barriers will always be

there, some created by ourselves, some created by the software. Octane still has some limitations that relate to my workflow, like the ability to modify multiple shaders at the same time, but the trick there is to do the best you can with what you have.

DAL: Very true. There's a "OctaneRender for DAZ Studio 3.0.0.6 (64 bit)" on test, as of Dec 2015. Maybe it's way too early to ask, but how are you moving from 2.2 to 3.0 alpha? If you don't have it yet, what are your hopes for 3.0?

Adriano: Due to some PC problems, no I don't have it yet. But then... I won't invest time in an alpha version of a software either. I do feel though my transition to 3.0 will be relatively painless, but only time will tell. Hopes? Well, that the volumetrics are as promising as advertised. That it enables the building of better custom materials. Plus the ability to share such custom materials, and a generally smoother workflow. That is all one can really hope for, and if that comes with bells and whistles, then 'all the better' I say.

DAL: OK, let's dive into your recent test comparing DAZ's new realistic iRay renderer with Octane 2.2. Opposite we show a clock picture in which you've presented comparative renders. Tell us about this test, please?

Adriano: I tried my best to stay consistent with lighting on these, but that did present a few problems, and also on the Octane cup/stand render, I swapped the blue and orange emitter colours. The same HDR was used and two sphere emitters, both in the same place. Octane, I feel, gave much better environment lighting — through global radiosity/bounce. Material refraction was Octane's stronger point, too. That being said, the results were pretty close — and in the hands of the right artists anything can happen.

DAL: Yes, and I like the contrast and shadows. How were the render times on each?

Adriano: Time-wise, iRay and Octane were both about the same — 1hr 30mins per render, approximately.

DAL: Interesting. Many readers will also be interested in working with DAZ's new flagship Michael 7 character and iRay. Could you talk us through this portrait, where you used NIK Tools's Detail Extractor function to get a very pleasing look from a raw iRay render. I particularly like how detail has been added to the eyebrows and jaw line. Which Nik Tool is the Detail Extractor in, exactly?

Adriano: NIK Tools is awesome, a cornerstone to my post working process. As usual, I wanted to see what I could do to enhance a raw render and this is an area I am always testing. The most commonly used filters from the suite are from the Color Efex Pro range. In particular for the image as you mentioned, the Detail Extractor was used. You have to be careful with it though, it can really pull too much out and I found 5% on the Detail Extract is generally enough, then I adjust the Contrast and Saturation to suit.

The layer NIK creates is then adjusted more, inside Photoshop, mainly with Layer Opacity and a fill if required. The other element that can be added after this is the Output Sharpener, which will enhance your image just that *little bit* more. Personally though, I recommend using your sharpener first and other filters and then apply the Detail Extractor last.

DAL: Super. Does it work best on a particular size of render? I imagine that larger is better?

Adriano: Large images give you more room to move, I feel, better adjustment scales. Though it will work on smaller images, you just have to be more careful.

DAL: So would you recommend iRay over Octane, or *visa versa*, to someone who had a PC that could run either?

Adriano: Both have their pro and cons. iRay currently ships with DAZ Studio, and it can give great results. Working with figure shaders is easier in DAZ Studio and iRay, but on the other hand seeing real-time results during your workflow is much better in Octane. My advice is to try both, and find one that suits your needs.

Pictures: Laticis's test of DAZ Studio iRay vs. Octane rendering. The top row is iRay (better metal surfaces) while the bottom row is Octane (more realistic lighting, better glass, darker shadows, and prettier highlights).

Picture: Laticis's render (before/after) in DAZ Studio 4.8 (iRay) of the new Genesis 3 Male character Michael 7. Laticis used Photoshop and NIK Tools to increase contrast and bring detail to the render.

To date it is my opinion that Octane will yield much better results in most areas, but as always there is a price to pay.

DAL: Tell us about your high-end PC, that you use for Octane rendering. It sounds amazing, with no less than *two* massive cutting-edge Titan graphics cards, although a few weeks ago you said it was out of commission?

Adriano: Oh yes, it has been a sad month or so. But that is how life works, and as I type a new motherboard is sitting on my bench waiting for its installation. The whole event has cost money, but I got a break from work at the same time — and that led me down a path I have been wanting to do more of, which is 3D content creation! Now there are plenty of freebies to be now be found here.

DAL: Wonderful, well thanks for those. I'm sure our readers will enjoy following that Web link. Thanks for making them available for commercial royalty-free renders, too, as is traditional in the Poser/DAZ content ecosystem. I very much like your most recent gothic items in OBJ: the Skull Cave of Madness; Female Spirit; Cauldron; and more. Also the G2M and G2F eyebrows and G2M beard in mesh, which may please DAZ people doing toon renders (eyebrows, being usually painted, fail to toon up very well).

Adriano: As for the PC itself, it was designed particularly to run Octane without the need for water cooling, and I didn't spare any expense and moved towards a great CPU. /*Laughter*/ … it is running from a 15 amp power outlet, which is very rare for *any* PC in Australia, I would say.

So, below is the PC's build list:—

CPU: Intel Core i7 5960X Extreme Haswell-E 8-Core + Noctua NH-U9DX i4 CPU Cooler.

GPU: Gigabyte GTX TITAN Z 12Gb (x 2).

Power Supply: Corsair AX1500i.

RAM: G.Skill Ripjaws 4, 2400MHz 32Gb.

Solid State Disk: RevoDrive 350 960GB PCI-E.

Operating System: Windows 8.1, Professional 64-bit.

Motherboard: MSI X99S Gaming 9 AC, Intel LGA 2011-3 ATX

The new motherboard is: MSI X99A Godlike Gaming

This PC build didn't just have to cover me for Octane rendering, but other applications as well. Such as Lightwave, 3D Coat, Photoshop and the movie making software HitFilm, just to mention a few. I feel that I found just the right balance for the right price. On the darker side of this tail, my dream PC has now been tainted by current events… but *them's the breaks.*

DAL: So, looking at your freebies, I can see you've been able to progress with your props development skills, recently. Are you still working with ZBrush and DAZ Hexagon?

Adriano: /*laughter*/ Yes, and as I said I've had time recently to delve much deeper into ZBrush, Hexagon and 3D Coat — I was using my spare PC, to focus on developing a workflow and style. If I can focus on ZModeler, it is very possible that DAZ Hexagon can be pulled out of that equation.

DAL: You've also been doing some interesting work on facial hair, from the lion which opens this interview, to old men, to shaved stubble. Plus your Genesis 2 mesh eyebrows freebies and beard. Hair detailing often seems to gets less attention in the 3D artist community than skin does, and yet hair and stubble is often a make-or-break item for a portrait — whereas I think 90% of the audience won't even notice tiny details down in the skin texture. So could you tell us about this hairy side of your work?

Adriano: Yes, I am fixated on ZBrush Fibermesh — and not only for hair, but also for grass and other fiber effects as well. My whole journey to hair started with an attempt to do some eyebrows for the wizard image, and it escalated from there. It's such an easy process that Zbrush offers, in terms of generating fibers. But after that a skill set is required, and that will only come from practice. The fibers are awesome but the biggest shortfall with them is they are very heavy on the geometry side of things.

LATICIS IMAGERY

Pictures: Free .OBJ models made with ZBrush 4R7 / 3D Coat, and currently available free on Laticis's DeviantArt site.

ABOUT OCTANE:

Octane 3 was released in spring 2015 and is a OTOY Inc.'s powerful 3D scene renderer. Like many photoreal render engines, Octane requires a very fast CUDA-enabled NVIDIA graphics card. Octane is available for Poser inc. Poser 11 (64-bit), DAZ Studio (4.5 and up), and Carrara. Octane costs 429 euros (about $450 U.S.) for Poser and DAZ.

Pictures: "Wizard's head, final" (left) and "I Need a Life" (right). Both Genesis 2 Male + Laticis's fibremesh hair, in DAZ Studio 4.6 and Octane 1.5, Photoshop CS6 and NIK Tools.

Another hurdle, other than the need for a powerful graphics card (see page 24 for our advice on that), is translating certain types of native advanced Poser and DAZ materials.

Not all such materials translate well and — unlike Posers's SuperFly and DAZ's iRay — there are far less community workarounds. Online at: Octane 3.

DAL: Yes, that's often the way with complex hair. It can send render times into orbit.

Adriano: When aiming for semi-realism. And the biggest challenge I faced for my first hair product was balancing appearance with file size, because every morph created bloated the file. That being said, if you are happy to work on one particular static scene, then the use of ZBrush and its Fibermesh to design and create the hair to suit it is fantastic. But I still see room for improvement in this area.

So… the freebies help me to obtain useful feedback from the community, and that pushes me to excel and improve. Yes, hair is one of the biggest challenges faced in the 3D environment, and it is always inspiring to see that job done well by professionals in the content design industry.

Picture: "Mind Over Metal 2". Genesis 2 Female in DAZ Studio 4.6 and Octane 1.5. Photoshop CS6 and NIK Tools, Dynamic Auto Painter 4.

DAL: Some interesting and impressive sci-fi pictures have appeared in your gallery, since we last interviewed you. We can't feature them all here, but readers should definitely revisit your gallery on DeviantArt to see what's new there.

Could you talk especially about the 'chains' superhero picture, which has a very interestingly stylized comic-book superhero look. We're focussing on Poser and its new real -time Comic Book Mode this issue, so there's a fit with what we've covered earlier. How was that picture achieved in DAZ Studio? Or was it mostly done in Photoshop?

Adriano: Well, I try to mix things up, once in a while. The 'chains' picture was actually a heavily post-worked image in Photoshop. But, at the core of that effect, there's an image layer created in the "Dynamic Auto Painter" software.

"Dynamic Auto Painter" gives the ability to create many paint effects, and it's a *very* dynamic piece of software.

The technique has been evolving over some time, take the render into Photoshop — then to Dynamic Auto Painter, and back again to Photoshop for adjustment with NIK Tools and some of the internal Photoshop filters such as Poster Edges. If a render fails, has too many problems, then I will generally try this technique to 'bring it back from the dead' — and I must say that the style has grown on me.

DAL: Interesting. Yes, I think the trick to making those sorts of auto-sketch and auto-painter plugins useful is very much to start with something relatively clean — rather than a noisy photo or a photoreal render. Then to use layer blending and opacity in Photoshop, to define edges. But everyone finds their own way.

So, the render of the little robot sculptures are very cute. Do you have any interest in making these or other characters 'real', via 3D printing?

Adriano: They are very cute and I have to tip my hat to the original model creators: Cam Bot by Stonemason; the Honey Bolt robot by Angry Viking Press; and Bug Bot by TheAntFarm.

So, to answer your question, yes… I do but would really like 3D prints to be my own sculpts

Picture: "Metalussa". DAZ Studio 4.7 and Octane 2.17, Photoshop CS6.

and models. There is impressive work being done in the field, and I am very interested in getting involved but I have much more ZBrush work to do before I can think about delving any deeper into that aspect of 3D.

DAL: And finally, we can't overlook the beautiful 'sci-fi look' portrait from your recent work. Readers will see it on the back cover of this issue. What's the story behind how this portrait developed?

Adriano: Sadly to say, a lot of my work doesn't have a back-story. But I do remember that this portrait was created because I wanted to work with a texture that I normally steer clear of. Most of my work with female characters is restricted to achieving natural-looking skin and the usual aspects of a portrait. So it was a nice change…

On that note, part of me knows I need to start pushing into images that have some level of background story, images that evoke a sense of story and feeling for the viewer. 'Most' of my current work is in a sense just: starting an image; seeing where it evolves on its own; and then I focus on lighting, materials and workflow. No real story to tell, yet.

DAL: So, finally, what has inspired you in 2015 — and what do you look forward to in 2016?

Adriano: One of the biggest inspirations of 2015 wasn't an external source but the self development of my FiberMesh skills, that was a big driving force for me. 2016 will bring more content creation, as I wish to focus on that and my creation skills rather than always using purchased products.

The main idea for 2016 will be to build up my DAZ PA account and to bring more of myself and my ideas to the content marketplace.

DAL: Super, thanks for talking with us again. We wish you a great and profitable 2016.

Adriano: Thank you very much, it was a pleasure. May 2016 be a grand year for us all, wishing you the very best. Cheers!

Adriano is online as **'Laticis'** at DeviantArt: http://laticis.deviantart.com/gallery/

Picture: "Landed" (detail). Tripods exported from DAZ Studio 4.7 to Vue Complete 2014. Photoshop CS6 and NIK Tools.

QUALITY RENDERING: What about VUE?

If you're looking for a very high quality renderer, especially for atmospheric landscapes and spacescapes, also consider Vue. While Vue's render times are certainly not the fastest, the quality on landscapes and foliage can be extraordinary. You can see two of Laticis's Vue pictures below and overleaf. Advanced versions of Vue can import Poser .PZ3 files and will attempt to use Poser's internal shader tree when rendering the Poser materials. At the cost of PC memory, Vue's makers claim their importer means that your "… Poser characters will have the same look inside Vue as they had in Poser…".

The Vue purchase options and addons are complex, and Vue may not yet support .PZ3 import from newer versions of Poser — so we recommend that you ask around on the forums about the current state-of-play.

Picture: "Landbase 2015". DAZ Studio 4.8 and Octane 2.2. Vue Infinite 2015. Photoshop CS6 and NIK Tools.


LATICIS
IMAGERY

Digital Art Live STORE

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This covers:

- Some Key Science fiction movie design influences in architecture
- The impact of the futurist designer Syd Mead
- The stunning interior artwork of Tarik Keskin plus Q&A
- The commanding cityscape images of Christian Hecker (Tigaer) plus Q&A.

Christian Hecker (Tigaer)

Christian Hecker is a dedicated digital artist who uses VUE and Photoshop. He has formed a recurring theme through his portfolio of depicting futuristic large-scale cities and this, really, is a natural response, perhaps from growing up in the environment of the industrial landscape of East Germany, as well as being awed by the production paintings of the sci-fi movies that we all love.

https://digitalartlive.com/shop/

REALITY 4

Digital Art LIVE interviews **Paolo Ciccone**, the author of Reality, a plug-in for Poser and DAZ Studio. In 2010 Reality introduced affordable physically-based photoreal rendering, 'PBR', for both software packages. Development continues and the flexible software is now in version 4.2.

DAL: Paolo, welcome to *Digital Art LIVE*.

Paolo: Thank you very much, and thank you for having me. It's a pleasure.

DAL: To start, do you remember the James Bond movie *Goldfinger?* I was looking at the promotional image on your website that explained about the features of Reality 4.2, which is the latest version. And Margaret Mane produced this wonderful illustration "Gold Dream", and it reminded me of the famous James Bond movie. How did you discover that promotional picture?

Paolo: Isn't that a stunning image, though? When I saw it, when the artist sent it to me via email, it was just a few days before releasing 4.2. And I was scrambling trying to find a promotional image, and she sent me that. I dropped everything, I thought "Oh my God." That is one of those moments where it's extremely gratifying for me to see what people do with my software. That picture is just fantastic and I saw it, I thought okay, *this* is the promo. I emailed immediately the artist, "Please, please let me use it."

DAL: And it's got these wonderful textures. And especially the gold metallic paint on the skin, it just really has a lovely sheen to it.

Paolo: Oh, yes. And I don't even know how she did that. I asked her to make a tutorial. I said, "Can you make a tutorial?" She's, "No, it's my technique. I'm not going to tell anybody." "That's fine, that's fine." Every artist has a series of tricks of the trade, and I totally respect that. And I'm just happy that we got that result. A striking picture.

DAL: Now, winding back a bit, I know that you have a background in photography and cinematography as well. Have ideas from these fed into the development of Reality over the years?

Paolo: Actually, that experience is what prompted the whole development. My passion for cinematography and photography is really at the base of all the development. I spent some time in Los Angeles in Hollywood, doing some shooting for a pilot, for TV, some Web episodes. We were interviewing a lot of cinematographers who are on the set of *24* and *The Office* and so on. It was a great time, I really enjoyed that greatly.

But that was in Los Angeles, I live in Santa Cruz, it's an eight-hour commute. So at some point, I really had to make a decision. And I'd love to get back into that world. I was actually talking about camera and shooting, and lenses with a few people just last week here.

But basically that's when I decided to develop a software, I was trying to look at 3D rendering again. It was something that I started being interested in 1999 or so. And because of my background in photography at that time, I was so fresh with cameras and camera lights and all those techniques, when I started using 3D software, I got so frustrated because the lighting in 3D software traditional is nothing like real lighting. So, if you have an experience in real lights, then you know how to light a scene, maybe you'll have to do a few different attempts, but you know how a light works in real life. And traditionally 3D software has nothing like that.

PAOLO CICCONE

USA

SOFTWARE DEVELOPER | REALITY

WEB

Picture: "Gold Dream" by Margot Maine. Reality.

So at some point I was looking around for different solutions and I stumbled upon LuxRender. And a light bulb just appeared over my head. I said, "Ah, there is a way of creating photo-realistic, physics-based lighting in software. Finally."

And so I looked into that world of physically-based rendering — PBR — a little deeper. I thought, okay, this is a great technique, it's a great technology. Let's see if there is something for the Poser and DAZ Studio, that allows me to use that technique. And I was surprised that there was nothing. In fact, nobody knew even what PBR was, at that time.

And so that became an opportunity. I looked at that situation, I thought, well, we have a software like LuxRender that is available, free, it's open source. And it creates incredibly realistic scenes with lighting that is modelled after the real world lighting. So, that's great.

We don't have a way of using it though in DAZ Studio or Poser. So okay. Well, I'm a software developer, let's see how we can bridge these two worlds. Because with there's a market of pre-made content for Poser and DAZ Studio, so it was a very interesting idea for me. And so as you see, the photography, cinematography experience fuelled directly the development of Reality.

DAL: Absolutely. And people who use DAZ Studio and Poser, they don't have the opportunity perhaps to be on a real movie set, but they can make their virtual movie sets. And now with something like Reality, they can get a very good rendering system that produces something fairly photo-realistic.

Paolo: Right. In fact, for the past few years, the photographers who used those programs were the most receptive users. Often I would receive an email where people were saying, "Finally, I can use lighting as it's supposed to be." So I totally understand them because it's so incredibly frustrating to use your traditional 3D lights that just don't behave at all like real lights. There's a lot of hacking, there is a lot of tricks, but if you know how a light reflects on a surface, then you don't want to do a hack. You just want to put your reflector, your light, and render it.

Lighting is complex enough, even in real life, when you have physics that react the way you are...we are born in this world, we see light every single day. Otherwise we don't see, unless unfortunately for the people who are blind. But people with vision, we experience light every day. Subconsciously, we know what makes a real light and fake light.

And so to have to deal with a lighting system in 3D that doesn't behave in the same way that we experience every day, light, it's extremely frustrating. I don't know how to express it in other ways. It's like going against a wall sometimes. Really it's like I am trying to do the simplest thing, just to bounce off a light from a surface, and it wouldn't work the way it's supposed to work. You know? So anyway...

DAL: Now, I know you're planning to make quite a trip or move to South Carolina soon? Around 3,000 miles.

Paolo: Yes, from California to South Carolina, that is quite a bit of a distance.

DAL: And with your photography hobby, are you looking forward to new photography opportunities over there?

Paolo: Absolutely. I remember when I moved from Italy to California more than 20 years ago, I noticed how the sky here is different from how you see it in Italy. And there's just a different quality of light, and of course a different type of nature here. It's a different continent. We are on the edge of the continent. And just the way nature behaves is quite different. It's a different climate, a different atmosphere, literally, in terms of what is in the particles that makes the atmosphere.

And South Carolina, at least in summer, has a tropical side. Nature is different, it's flatter than here. And so yes, we need to explore that area — Charleston and around — and the camera will be with me all the time.

Picture: "102515 Portrait" by 2Loose2Trek. Poser Pro 2014, Reality, PaintShop Pro.

DAL: Now, Reality is described as being made with the artist in mind. So by definition, does that allow the artist to focus on the art rather than all the technicalities that you can have with a rendering engine?

Paolo: Well, yes, that was one of the goals from the beginning. I do have a background in art. I studied at the Art Institute. So I'm trying to balance the two different interests I have, one is the technical, logical programming interest, and the other, the artistic side of my mind. So from the artistic point, and from talking with several people in the forums and directly Poser and DAZ Studio users, I have a pretty good idea of what the artist is expecting from software.

So when I looked at integrating LuxRender in DAZ Studio and Poser, I saw that LuxRender is a very complex piece of machinery. It's very sophisticated software. And it took me a long time to really understand all the intricacies of the program. I'm still learning, by the way, because LuxRender is still evolving.

But I didn't want to have such a learning curve for the user so that that they needed to get involved into the technicalities. I really think that the way people use Poser and DAZ Studio is to create art by inspiration, in the heat of the moment. A lot of people adopt these software packages to try to express some need they have internally. And there's nothing more frustrating — or at least it's very frustrating — when you're trying to express yourself and you can't find the words or the tools, or you have to struggle with a user's manual. Now, a little bit of study is needed for any product, but a little bit is very different to being swamped by details. And so crucial to the development of Reality was to shield the user from the complexities of the underlying technology.

And paradoxically, what happened is that Reality provides a more realistic, a more professional result for Poser and DAZ Studio users, but it makes the process easier than using the underlying technology, the built-in technology of DAZ Studio and Poser.

DAL: Sounds like a win-win then for the artist.

Paolo: Yes. And I keep working on it. Like any software, it's an evolving process. So I'm looking at what we have today and I'm thinking… okay, we can simplify *this*, we can make *this* a little less technical. But it's an effort that is going on continuously. It's a focus of my development, and it was one of the founding principles of Reality when I started six years ago now. Because it was released in 2010, but of course the development started a year before.

DAL: So, for example, you don't see something like a complicated node system?

Paolo: No. Which I really think that is such a letdown. Actually I'm writing a three-part story on my blog. I published the second part today, and I really started addressing that in the story, in the articles… because nodes are...it's a funny thing that even this morning, just this morning, I received a comment in the blog from a customer who said, "To tell you the truth, I don't even know really what the node does." So that exemplifies, that really demonstrates how the node system is so far away from what the artist wants to do.

And the fact is that in computer science, we are very familiar with graphs. So there is a lot of talking about graphs, like this and that, etc. Graphs are great tools for mathematicians and programmers. When you're looking at the problem, like defining a material, how to create all the properties of a material, it leads automatically to a graph.

Now, that is what the programmer thinks. The failure in the implementation is that to realize that artists are not familiar — generally or necessarily — with maths. And actually a lot of artists are quite uncomfortable with math. So to not realize that the target audience is really not familiar with a graph system — and the node system is basically an editable graph — that is a major, major failure in design.

DAL: Yes. I think it's a real challenge for any artist who uses a computer graphic software. They want to be artists, but they're continually having to use their logical brains to *figure some stuff out*.

Picture: "Chinese Dream" by Elia Neck. DAZ Studio and Reality.

ELIANECK.

Paolo: Right. Because materials are defined by a series of elements that define a certain function and they have parameters. The output parameters of one of these functions could become the input parameter of another function. You can string them together, and create these complex systems of function calling other functions, etc. And those are definitely well-represented by a graph or a node system.

Now, what the 3D world has done traditionally is to dump all that representation in front of the user. And to basically define a user interface by how the computer memory represents the data internally — that's a terrible solution. It's perfectly fine for mathematics-inclined people. But for artists, it's not the most natural solution. So a lot of people who are successful in the 3D world are people who are very comfortable with technology and art *at the same time*.

So with people who are using Maya, 3D Studio Max, Cinema 4D or Blender, are often people who are very successful in the area of being technically efficient *and* artistically efficient. But for a lot of people who are more on the hobbyist side, the people who are using Poser and DAZ Studio who basically just want to express themselves artistically, then the mathematics portion is quite uncomfortable, and so a node system is uncomfortable.

When I was developing Reality 3, I thought about it for a while. I considered the node system. Because in Reality, you can really create very complex materials with different kinds of textures, and you can link textures together. And so, since everything was done before with nodes, I thought, okay, I have to implement a node system and I started designing it. I started thinking about how it should behave, how it should work, how it should present itself, or what the user will need to do. And then I stepped back and I thought, no. A node system is just not a natural UI for artists. And so I decided to not implement it.

And so there are several ways we can avoid a node system, and I'm still working on it. I'm not claiming that I solved the problem. But in Reality, for example, there are a couple of fundamental concepts that simplify material editing. They are not found in anywhere in Poser or DAZ Studio.

And the first one is that when you're looking at the advanced materials in Poser or DAZ Studio, there is no *type* for the material. You're looking at a series of nodes and you don't know what they represent. You're looking at three pages of properties in DAZ Studio, you don't know what they represent. There's no context, there's no information there.

As humans, we look at the world, — if I'm holding my iPhone right now, I know that the front is made out of glass and the back is made out of metal. Now I instinctively know these materials. I know what glass is and I know what metal is. I'm not decomposing those materials into their atomic properties. But that is exactly what's happening in majority of software.

So, back then when I started developing Reality, I thought, okay… one of the reasons why I like the LuxRender is because Lux really has material types. So I extended that concept in Reality with other types too. But the idea is that if you want glass, you're going to have glass.

So in Reality, you can right-click on a material and say, okay, this is glass. It's not the preset, it's the *type* of the material. Anytime you're going to highlight that material, anytime you're going back to that material, it will be clearly said upfront, right there, this is *glass*.

And the beauty of that is that only the properties that matter for glass will be presented. Only the properties that matter for metal will be presented. So for example, the index of refraction, well, you don't expect the index of refraction to be available in metal. There is no index of refraction for metal. That's a property that affects glass. So when you are selecting metal in Reality, you don't have something like that present. You don't have to even consider it. It doesn't appear in front of you on the screen. When you're going to glass, you don't get the properties that are typical of cloth. When you're going to cloth, you don't


"So in Reality, you can right-click on a material and say, okay, this is glass. It's not the preset, it's the *type* of the material."
Louvre

have the properties that are typical of skin. Everything is isolated so you have a *type* that which gives you the context of what you're working on, and you have a very limited set of parameters to add it. And they make sense.

So if you have a metal material, you have a level of polish. How polished the material is? So if it's a rough level of polish, it will be lower and if it's high, it will be shinier. That makes perfect sense. If you polished shoes or metal in your life

any time, if you just shine the silver wear, you know what we are talking about. It's that simple. So none of that stuff is present in Reality. You find things like *tint*, *polish*, terms that you find in real life.

DAL: So let's talk about material translations. Materials in DAZ Studio or Poser get translated for the Reality renderer. And so the accuracy of material translations is an absolutely must. So, how does Reality help with that translation?

Paolo: Absolutely. So the first part is there is a challenge here because Reality is basically taking the materials that are defined to work in DAZ Studio or Poser and it converts them to its own representation. Now, materials for those programs are made for those programs, and they are completely different from Reality and LuxRender. So there's a big challenge there — specifically with Poser — where there are nodes that can be concatenated together and Poser's network of material nodes can be quite deep.

So first of all, it's necessary to understand the basic properties of the material. And then Reality does a whole set of operations trying to balance and convert the properties into something that makes sense.

So, for example, the specular color in Poser or DAZ Studio is not converted directly as it is in Reality, because the level of brightness of the specular color are treated in different ways whether you are in Poser, Studio or in Reality. And so the conversion of the brightness of the specular color is done in an intelligent way.

Having said that, there are several times when it's necessary to do some other adjustments. And so one of the features of Reality is that it provides a material editor, one that is user-friendly and really approachable. And so when the materials are converted in Reality, then you can take advantage of the Reality-specific features. Because the materials in Poser and DAZ Studio have not been designed to be physically accurate, although you can take advantage of the PBR features of Reality. But once you have the material converted in Reality, you go into Reality — into the material editor — and you can customize the material to take advantage of the features that are specific to Reality. So it's not just a matter of converting some colors or some textures, but then you have the properties of Reality to help you create more convincing images.

DAL: Yeah. Now, just to emphasize, the latest version of Reality is now compatible with Poser 11, which is great news.

Paolo: Yes. Reality 4.2.

DAL: So this version of Reality taking the advantages of any of Poser 11's new features?

Paolo: Interesting question. Poser 11 made some changes that broke compatibility, but I quickly fixed that issue and made Reality compatible with Poser 11. I did add a few other things though, from Poser. Basically one of the biggest changes is the support for dynamic hair, which was not available before. And Poser also has a very interesting way of growing hair and fur on surfaces, and so now Reality 4.2 supports that system.

Picture: "Untitled" by Elia Neck. DAZ Studio and Reality.

DAL: And I know Reality 4.2 comes with Reality-ready starting scenes. Tell me about those.

Paolo: Yes. Well, that was an idea that I had to try to help the user, the artist who wants the easiest way to start to use Reality. Instead of guiding the artist through the process of adding this light and this other light and etc., I'm shipping a scene that is already designed to give you a very good starting point.

So, the scene has some background, has some couple of lights and a couple of cameras so that you have a wide shot camera and another camera, and so you can just load that scene and then add your character or characters, and then go to Reality and click "Render". Now, I did that for Poser in version 4.2, and I did the same for the upcoming 4.2.1 updates for DAZ Studio. So DAZ Studio users will also have a startup scene that will help them get a very good result just with a few clicks.

DAL: Great. Now, is there anything else specific to 4.2 that you'd like to mention?

Paolo: Let me see. I'll go through my list of what's new. Let me see. So there are a few different things. There is a lot of support for Poser. Poser was the focus of this release of 4.2. So we had support for Poser 11 and scenes, as we just mentioned. And yes, there are a few fixes. For example, there was a problem with duplicating objects in Poser but the duplicate didn't appear in Reality. Now that is fixed. And we improved the conversion of specular channels, and so it will give you much better results.

And there are a few interesting things. I realized that in Poser, there is a possibility to create an image map node which doesn't yet have a bitmap picture plugged into it. So in a couple of very strange cases Reality was converting materials and… it resulted in a node like that. So there is a little more intelligence in the conversion, now. I'm looking at the image map node, and if there is no material there — then we will do something different.

Let me see what we have again. We improved the general working of the program, the treatment of water materials, and supporting Poser's dynamic hair system. We improved the metal material quite a bit. And there is new start scene for the Studio. And we also have the preset for Pauline, the new figure for Poser 11.

And one of the things we also did was to simplify the user interface. We streamlined it quite a bit. Its cleaner, it's less colored, it's easier to read.

The copy and paste command… some people complained about it to me, and rightly so. Moving from Reality 2 to Reality 4, there was a copy and paste menu in Reality 2, a copy and paste option in the right-click menu. So, in Reality, you can right-click on a material and you will have a bunch of options, including how to convert the material from one type to the other. But in Reality 4, I didn't think it was necessary. The menu was a little 'busy'. But several people complained they wanted it. So there you go, I added it.

So 4.2 is a very good, very stable update. One of the issues we were having was to sometimes with DAZ Studio, there would be a lack of sync between Studio and Reality for the cameras. If you were adding the leading cameras in Studio, in certain situations, Reality would not keep up with what was done in Studio. So now all the issues I'm aware of about cameras in Studio have been resolved. So this should be a very, very solid release.

Now, the upcoming version of 4.2.1 has a lot of goodies. So I'm not yet ready to talk about it… but yes, there are a lot of improvements.

DAL: And just to remind folks that perhaps on earlier versions of Reality. Version 4, the performance is much faster, isn't it?

Paolo: Oh, yes. With 4.1, we basically jumped up to up to 20 times faster than before. Yes.

DAL: And even faster than that, if you can take advantage of GPU processing as well, yes?

Paolo: That is right. That is right. This is 10 to 20 times faster. Performance improvement is based on CPU rendering. So with the same CPU, if you use Reality 4.0 and 4.1, you'll see basically that 4.1 has a large jump in speed. Up to 10 or up to 20 times faster. CPU only.

But with Reality 4.1, you can use both the CPU and the GPU together. So if you have a very beefy CPU, then that can be a real advantage. And if you are using GPU, then you can use multiple GPUs. You can have a machine that has, for example, an AMD and NVIDIA GPUs, and they will work together.

DAL: I think Reality detects your hardware as well, doesn't it?

Paolo: It does. It does. You'll see that directly in the render options. You will see if the GPUs have been detected and the exactly version number of the OpenCL support. So you'll be able to actually enable or disable any OpenCL device that you want. So, if you have two GPUs, for example, you might want to keep one reserved for other tasks. So you can say, "I don't want to use this in the render," or maybe you want to use it.

We've seen amazing results of linking multiple GPUs together. And the beauty of LuxRender Reality is that we use OpenCL, so we don't use proprietary solutions, and that means you can use any GPU in the market that has support for OpenCL.

And you can have multiple GPUs in your machine and they don't have to be from the same vendor. In fact, we have demonstration of rendering with heterogeneous GPUs, NVIDIA and AMD, for example. Yes, you can get near real-time rendering with multiple GPUs.

DAL: Fantastic. Talking about the Reality materials library — what are the kinds of physical materials and materials presets that ship with Reality?

Paolo: Right. Thank you for the question. Reality has built-in material types. So that means you can convert the material to a certain type without needing a preset. It's part of the functionality of the program. So you can have materials like glass, metal, cloth, skin, velvet, mirror and water. And there's something probably I am forgetting. But those are some of the types of material.

So for example, if you want to create a mirror, it's really a no-brainer. You right-click in the material, you select "mirror" and automatically becomes a mirror. Then you can change the color of the mirror.

If you want water, today there is the Reality rendering of water is the most realistic there is out there, bar none. And so again, you want to have a water material, like some liquid in a glass or a swimming pool with water in it. It's incredibly simple. You can select "conversion to water." We provide six different types of ripples, and you can change the color of the water. And that's it. That's pretty much it. There are like three or four parameters.

Then we have generic materials like glossy and matte, and those are more of the generic kind that can be used. For example, glossy can be used for plastic, really shiny plastic. Or matte can be used for things like rugs or rocks, that kind of application. So those are the preset materials we have.

And then there is a library of materials that we shipped with Reality. They are called universal presets because they can be applied to any material. And in there, we have things like 24 carat gold, we have chrome, hammered copper, we have wavy aluminum, we have some car paint materials that are really cool. And these were part of Reality 4.1.

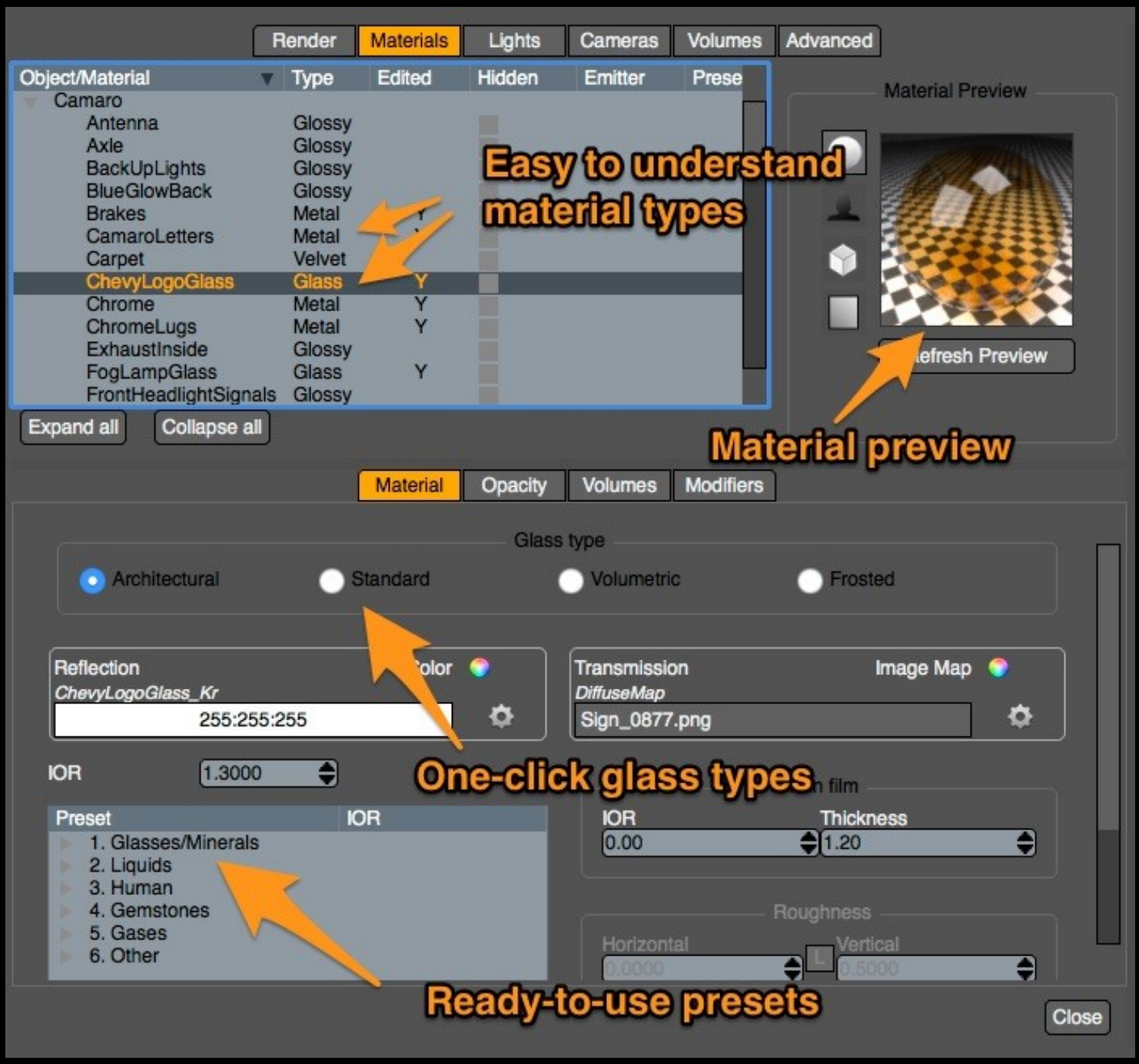
And we have iridescent materials. So for example there is a blue-purple material, and these are really good for cars or motorcycles. They're really shiny, very deep. We have some glass, we have gemstones, we have things like pearls. And they are all shipped with the program.

And we have hundreds of presets for some of the most widely used figures like Victoria 4, Michael 4, Genesis 1, 2 and 3. And so we have a lot of presets. They are perfect for starting using the product immediately, with maximum ease.

DAL: Sounds fantastic. And the other major advantage that I think is really cool is that you can render a scene whilst editing the scene back in the native application. And that's really cool.

Paolo: Right. Yes, thank you for mentioning that.

DAL: So the rendering is done inside Reality, and you can carry on editing in Poser or DAZ Studio as you render.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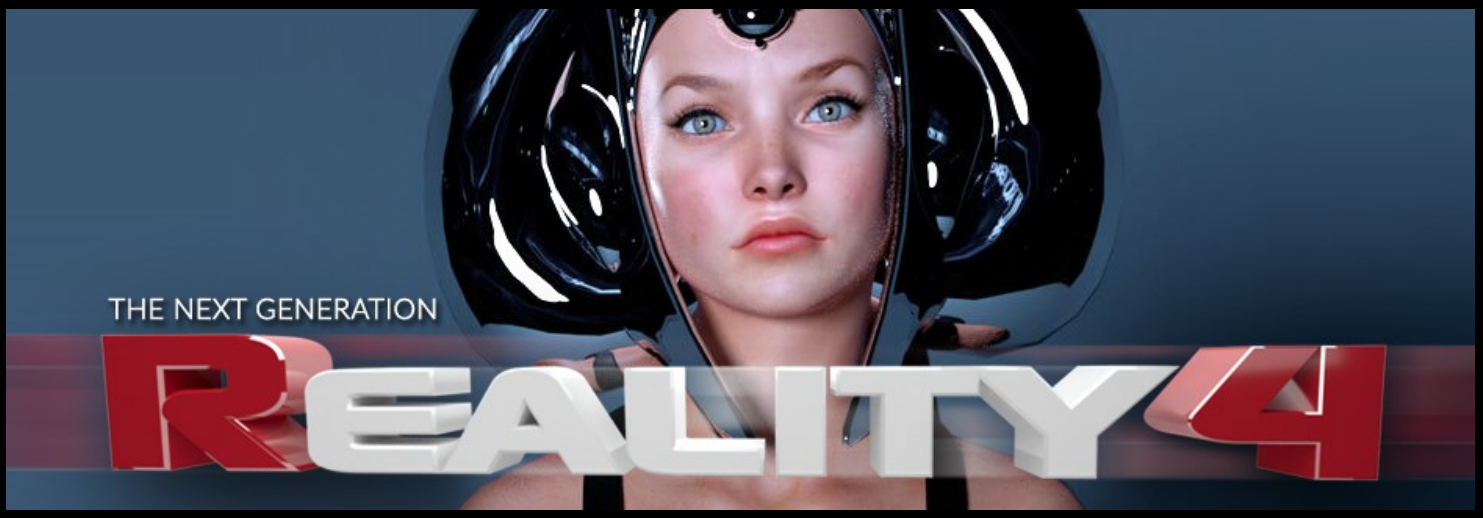

THE NEXT GENERATION
REALITY 4

Paolo: Well, more precisely, the rendering is done through LuxRender, which is a separate application. But what you say is correct. Basically what happens is that when you're rendering in Reality, you click on the Render button, and Reality will collect all the assets from the program like DAZ Studio or Poser. So it will scan the memory of DAZ Studio and Poser, will grab all the polygons and intelligently convert them to another format. The format is used by LuxRender. And apply the materials as have been defined or edited by the user, plus the lights and so on.

Then when it packages all of this stuff, it gives it to LuxRender, and it says, "Okay, here is the scene that I prepared for you. Go ahead and render it." Now, Lux is a separate application, as Reality is. Reality, well, it's called a plugin – it's really a separate application running on its own. In fact, if you go on your task manager in the Mac OS or Windows, you'll see it as a separate application, as completely distinct from Poser or DAZ Studio.

So it runs in parallel. So that means that once you're done with the rendering export, so when Reality collects all the information, which takes a handful of seconds depending on how complex the scene is, then you're free to keep working on your scene because Reality and Lux are rendering in background. You can go back to Poser or DAZ Studio, continue working on the scene, or even start a new scene. You're free to basically go back to your work in, like, five seconds.

DAL: And during the time that the render takes place, you can mess around with the lighting as well, can't you, the color and intensity?

Paolo: Right. You can change the exposure of the scene, for example. So this is a concept that none of the other products have, and which is fundamental. One of the things missing from a rendering package was a way to change the exposure. Think about this. You are outside in a sunny day. I know that it's hard for you imagine since you're living...

DAL: In England, yes.

Paolo: But try to imagine this — sun shining outside. Now, you have your Canon camera. You cannot dim the sun, can you? You cannot change the intensity of the sun. So what you do is, with your camera, you adjust the exposure.

If the exposure is too bright, so there is too much light going inside the camera, then you reduce the exposure by closing the camera's iris or by using a shorter shutter time. So instead of a 60th of a second, you are going to use 125th of a second. So you're making a very conscious decision to let less light go inside the camera. That's called changing the exposure, because you're there, at the mercy of the elements. You cannot affect the sun.

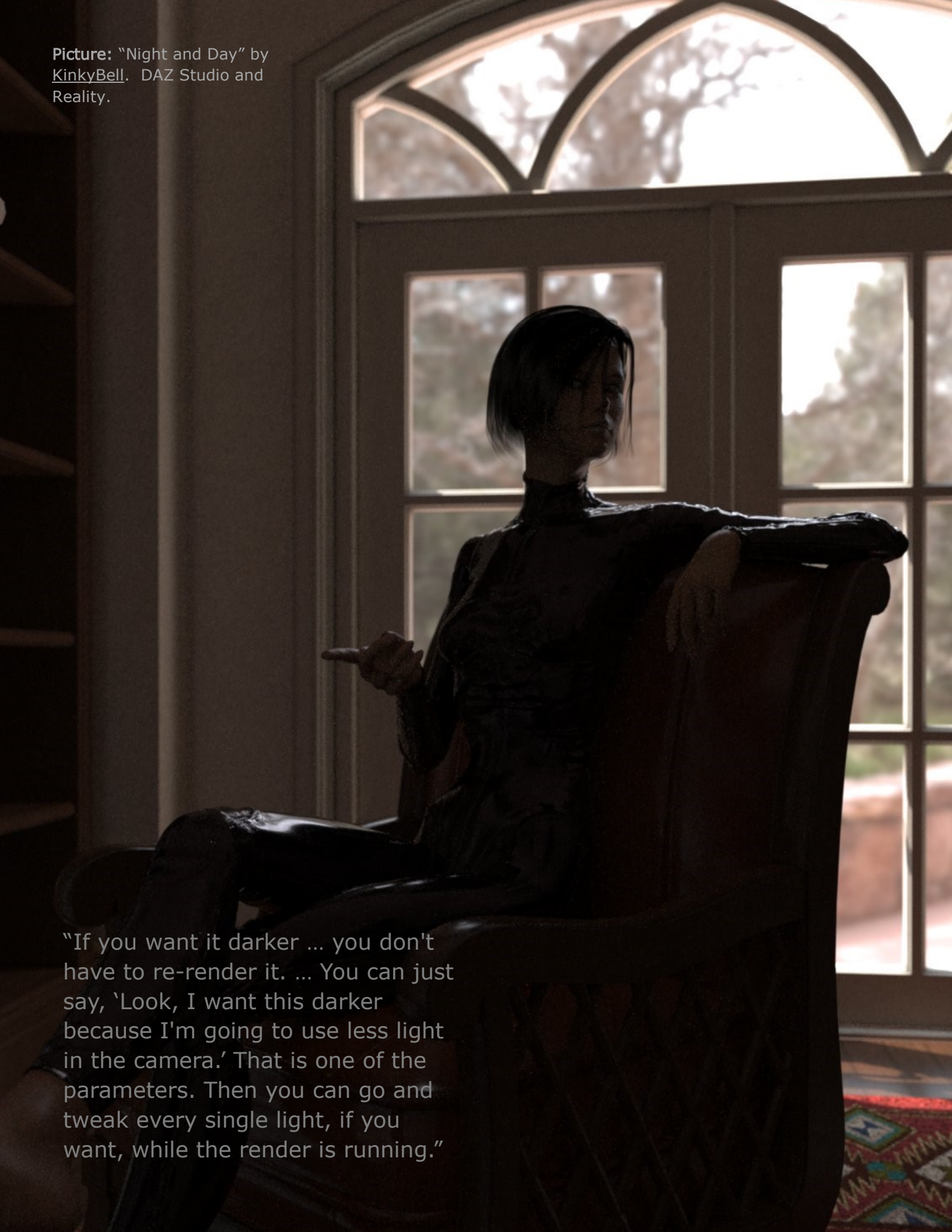
Well, the same concept is with Reality and LuxRender.. If you want it darker, you just act on the iris or the shutter time, the parameters, and your scene will be darker. You don't have to re-render it. You don't have to start tweaking in the middle in different lights. You can just say, "Look, I want this darker because I'm going to use less light in the camera." That is one of the parameters. Then you can go and tweak every single light, if you want, while the render is running.

DAL: Yes. It's changing it in real-time.

Paolo: In real-time. And not only that, you can even close the render and then restart it from where you left off. Yes. Let's say that for any reason, maybe there is a blackout, computer goes down for any reason, you lose power. Ah! I just spent 20 minutes up to this point. I have to redo everything from the beginning. No… you can just rerun LuxRender, load the scene, you will start from where you left off.

DAL: And that's because of how LuxRender works, it records as it does the rendering.

Paolo: There are a couple of parameters there that Reality... again, this is part of what Reality does behind the scenes. The parameters are there. It's not something that happens automatically. By default, Lux will not resume the rendering. But I thought, who *doesn't* want to have that option available?



Picture: "Night and Day" by KinkyBell. DAZ Studio and Reality.

"If you want it darker … you don't have to re-render it. … You can just say, 'Look, I want this darker because I'm going to use less light in the camera.' That is one of the parameters. Then you can go and tweak every single light, if you want, while the render is running."

And why do I even have to ask the user? If everything is finished, you're finished, at the end of your render, you'll delete your files that you don't need, you'll clean up the disk and you're done.

But if something happens — and over the years I heard a lot of people telling me how many times they used this feature — something happens, or for any reason you want to restart the render later on? Well, that option is provided for, it's set up, it's configured by Reality automatically. There's no need to ask.

DAL: Now, is there any new developments in the pipeline for LuxRender that you've spotted, that might provide some further advantages for Reality?

Paolo: Yes. LuxRender is now in version 1.6. It's public. It's in the open. LuxRender is an open source project, so there are no secrets there. There are several advances in there, such as starting a new render using the GPU without recompiling the materials.

So basically what happens is this, when you're using a GPU, you have to export the scene and declare the materials in a certain way using the language of the GPU. This declaration of how the materials are built takes some time for the GPU to be processed, the first time you send it. And of course, if you have multiple materials, you end up with a certain start-up time for a render. And nobody likes to wait, but sometimes that is inevitable.

Well, let's say that you go back and you change a scene's material from red to green, and then you have to re-export everything, restart from scratch. Well, with LuxRender 1.6, that is not the case. You'll be able to basically change the materials and re-render the scene without the GPU being required to re-compute all the material parameters. So it will be much, much faster to start. How are we going to take advantage of that in Reality? That's something that I'm working on right now.

DAL: That is fantastic.

Paolo: Yes. But that's in the future, not soon, because this will take some time. But yes, there is a lot of development planned. We'll see when it happens. I cannot quite talk about it yet.

DAL: Now, where can our readers find Reality?

Paolo: They can just go to my website which is Preta3D.com. And if they need to ask me questions, they can always contact us. We have forums on RuntimeDNA.com, and so they're more than welcome to ask questions. They can ask questions via our blog. I'll be more than glad to answer their questions.

DAL: Okay. Thank you, Paolo, for your time today. And it's been great to talk to you again.

Paolo: Thank you. It's been a pleasure.

Picture: "Portrait 01". A 2015 new-user test of Reality 4, by Maud3D.

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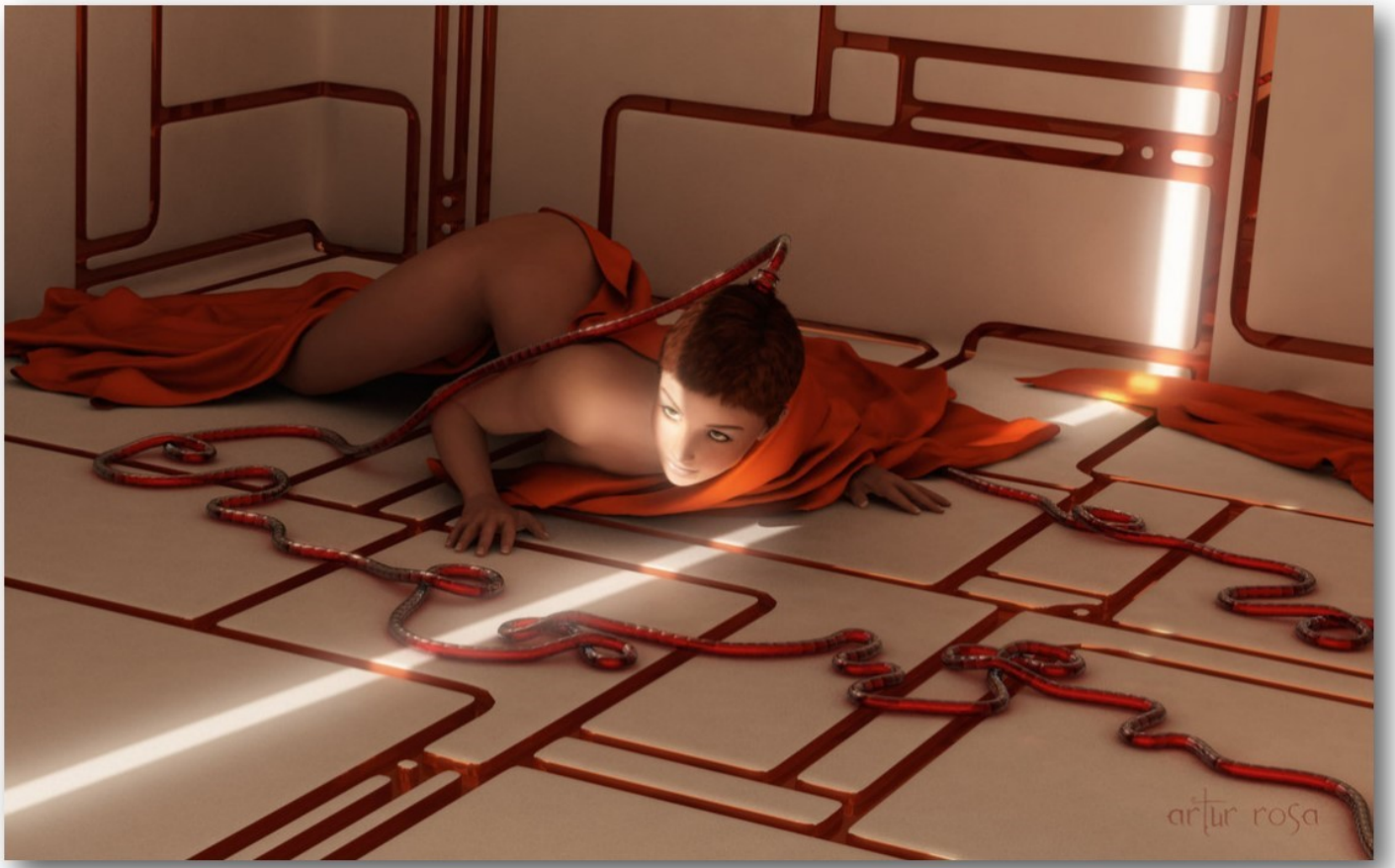
Reality for Poser/DAZ Studio is a valuable plugin providing the **highest level of realism** by taking advantage of the powerful Open Source rendering software **LuxRender**. It does all the hard work of converting Poser or DAZ Studio materials automatically for the LuxRender engine. These video recordings cover the previous versions of Reality plus the latest version 4.

It can take some time and experience to get the best out of this powerful add-on to, but you can get quicker results by taking advantage of these Masterclass webinar recordings.



Community Masterclass : Light

$25.00

Let there be light....

When I first ventured into 3D digital art, one of the things I struggled most with was light.

It wasn't just in how to light particular scenes, but it was the terminology and the physics of light that I didn't understand very well. Terms such as "volumetric light", "diffraction" and "subsurface scattering" eluded me and made this area of 3D art a little harder to get into.

This community masterclass will help those who have struggled with these lighting terms. We'll also go into some of the science of light to give a fuller background on the subject.

Digital Art LIVE IMAGIN

MASS EFFECT 4 and MASS EFFECT TRILOGY

The intelligent blockbuster videogame *Mass Effect* will be making a return toward the end of 2016, albeit with wholly new characters and set in a new galaxy! In the meantime, to stimulate your imagination we recommend the now-completed and fully patched original trilogy on the PC. Outstanding space sci-fi as a single-player game, with vivid characters, adventure and real moral choices. The first game (2008 for PC) was excellent — but be warned that the DLC side-missions were shoddy and boring. The second (2010) had the best game mechanics, but the story was rather gloomy — in keeping with the world's mood during the great recession — and the plot was muddled. The third game of the series got it all right, with an epic galaxy-spanning plot that all its side-quests link with, and memorable characters along for the adventure. *Mass Effect 3* can currently be had for a mere £3.99 as a PC Windows download via the official EA Origin store. The series is much-loved by sci-fi and role-playing gamers, and deservedly so. *Mass Effect 4* should be a big pre-Xmas hit.

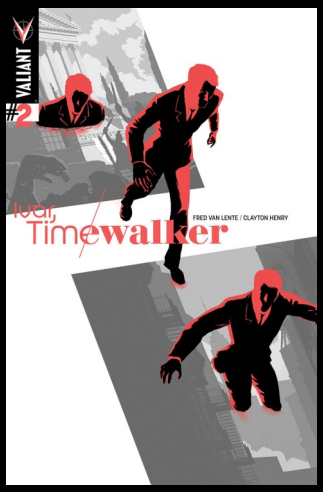
Our pick of the news about inspirational sci-fi. Make your imagination LIVE!

ARIUM

Picture: promotional pictures courtesy of EA International.

BEST SCI-FI OF 2015

Sci-fi in 2015? Well, of course many of the best examples are too obvious and huge to mention. Mega movies like *Star Wars: The Force Awakens*; *Avengers: Age of Ultron*; videogames like *Star Wars: Battlefront*; and big-name novels like *Seveneves* and *Aurora* (both about our future in spaceship colonies). But here's our pick of the 'best of the rest', if you have any spare time to peruse them in early 2016:—



Graphic novel: **TRILLIUM**. An eight-issue graphic novel, *Trillium* is a time-travelling love story that stretches from Peru in 1921 to the edge of colonized space in 3797. Imagine Arthur C. Clarke writing a French graphic novel, down a cosmic wormhole.

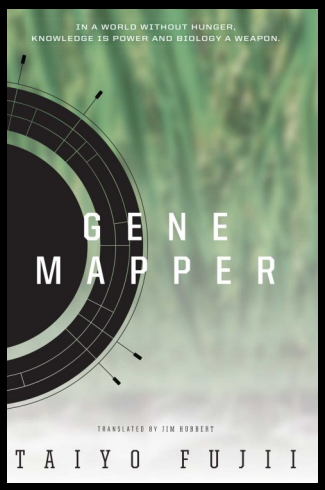
Comic series: **IVAR, TIMEWALKER**. A 12-issue episodic comic-book. What if *Doctor Who* had the time to really get to grips with the science and ethics of warping time and space, while still managing to do all the fun and funny sci-fi action bits?

Graphic novels: **JOURNEY TO STAR WARS: Shattered Empire**. Marvel's four-part graphic novel was highly acclaimed, and serves as a prequel to the new movie. Similar to *Star Wars*, the ongoing **SAGA** is also of note — a high-impact space opera that in 2013 took the Hugo Award and has won the Eisner Awards for three years in a row. Also interesting in 2015 was the four-part **AAMA**, a wild sci-fi ride into high concepts and alien visions on alien planets, in the continental European tradition.

Graphic novel: **THE THRILLING ADVENTURES OF LOVELACE AND BABBAGE**. This fat hardback graphic novel was on all the tech industry leaders' lists of Xmas presents. The book imagines an alternate technological history of Victorian England, in which Babbage did actually build his Difference Engine computer. And then used it to go on a roller-coaster steampunk crime-fighting adventure, along with his friend Ada Lovelace. Winner of the 2015 British Book Design award and the Neumann Prize.

Graphic novel: **DESCENDER**. Epic space opera, with a heart. Imagine that a robot boy and his dog strayed in the *Mass Effect* game. The title's movie rights have already been picked up by Sony. Ongoing, and currently at issue eight.

Graphic novel: **FASTER THAN LIGHT**. From the *Anomaly* team, an ambitious spacefaring comic book series made with the Poser 3D software. Currently only just getting underway, the series is up to issue four and is already being praised highly.



Novel: **GENE MAPPER** by Taiyo Fujji. Japanese literary sci-fi is having a big renaissance, and this is an English translation of one of the best of the new-wave novels. Smart and optimistic, this gripping cyberpunk adventure is set amid the bio-engineering organisations of 2036. No audio book version is available, sadly.

Movies: **THE MARTIAN**. The novel is said to be a textbook in disguise, but in the hands of Ridley Scott the movie is a triumph. Certain characters are heavily abridged or just there to check a tick -box, but the hero's central story shines through. Also see **TOMORROWLAND** — a deeply and often deliberately mis-understood children's sci-fi movie, but one that a more optimistic future generation will surely rediscover and love.

Documentary: **BACK TO THE MOON FOR GOOD** is a 24 minute documentary short by Google, which vividly tells the story behind Google's forthcoming Lunar XPrize race. Free, online.

U.S. TV: In late 2015 the **SYFY CHANNEL** brand tried hard to shake its dire reputation for "naff n' cheap" TV movies, and succeeded. Headlining was a fine and faithful three-part adaptation of Arthur C. Clarke's seminal novel *Childhood's End*. It dragged in the middle and 45 minutes worth of 'emotional couples talking about their emotions' could have been cut without loss, but the other five hours were excellent. Syfy has also aired four episodes of the series *The Expanse*, which *Ars Technica* calls "the best new science fiction series in years" — even though it's perhaps a little too heavy on generic sci-fi corridors (think *Battlestar Galactica* meets *Babylon 5*). For teen viewers Syfy's new spacefaring bounty-hunters series *Killjoys* is sheer sci-fi fun (not illegal yet, apparently). In 2016 watch out for Netflix and Amazon trying to catch up with Syfy and Spike TV in space sci-fi.

British TV: The BBC's **DOCTOR WHO** suffered some especially naff male villians this season, and was as choppy as ever. But the show was saved by Steven Moffat's tight storytelling, interestingly fresh and buzzy sci-fi ideas strung along twisty arcs, and a fascinating new character in the form of 'Me'. In fantasy, the British mini-series adaptation of *Jonathan Strange and Mr. Norrell* was a highpoint of 2015.

Videogames: **XENOBLADE CHRONICLES X**. 2015 was a year of huge energy in games. We just wish we had energy and time to play more than a couple of them. And the right consoles, and enough desktop hard-drive space. The most interesting and epic sci-fi game was *Xenoblade Chronicles X*, Nintendo's showcase RPG game for the Wii U console. In fantasy the indie *Divinity: Original Sin* wiped with floor with the old *Diablo* series — and is now enhanced for the PC.

Music album: Mirror System's endlessly listenable **N-PORT** is a series of elegant and restrained electronica soundtracks for expansive sci-fi films that have yet to be made. *N-Port* is the long-awaited successor to the band's outstanding debut album *Mirror System* (2005).

Multimedia: **BIOSPHERE**. The Norwegian electronica musician Biosphere (Geir Jenssen) and projectionist Dan Gregor filled the Prague Planetarium with extraordinary sci-fi visions in 8k interactive video. Video one and video two.

Interested in being interviewed in a future issue of *Digital Art LIVE* magazine? Or offering a webinar for our conference series? Please send us the Web address of your sci-fi gallery or store, and we'll visit!

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Back cover: Detail from "The Little Princess" by Adriano di Pierro ('Laticis').

NEXT ISSUE: FEB 2016

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