

DAMAGE TEXTURES FOR GAME ASSETS

Elliot Sharp details how to texture game-ready realistic, random damage for armour and weapons



ELLIOT SHARP

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What is your professional background?

I started my 3D career as a product designer, creating new products and rendering them for a handful of clients. This was my first real exposure to hard-surface work, and I knew I could use those skills to do something I was more passionate about. I've always loved games, so I began to study the workflows and techniques employed in the industry and worked hard to build up a portfolio. Then I began my slow, steady pivot from product designer into freelance game artist. The latest game I've had the pleasure of contracting on was *Warframe*, which was a really beautiful universe to work in.

Can you explain your process for creating wear and tear/damage on the Gilded Oval Shield?

I'm a firm believer that any good prop texture starts with a great bake. ZBrush played a big role in establishing the secondary forms and adding surface deformation. Quite a bit of sculpting was also done to emulate different styles of weapon



Gilded Oval Shield
by Elliot Sharp

damage on the shield face. When making large surface changes to a mesh in ZBrush, I'll assign a new Polygroup before completely dropping the masking. I do this for fast PolyPaint/Material ID assignment, which can speed up texturing. Any time I start a project in Substance Painter I make a masked folder for each Material ID. I use loads of fill layers with modified Cavity and Ambient Occlusion masks to get my surface definition going, and then I do quite a bit of custom masking. I think the key is to use procedural and map-based generation to get real-world randomness, and then custom paint details that add character.

What should artists bear in mind when texturing hard-surface models?

I think the baking fundamentals are always going to play a major role in how your textures turn out. Take the time to make sure your UVs are efficient, that your low poly smooths correctly and always bake with a cage. Getting great bakes is the first step to getting great textures. Keep in mind the world scale of your model as you texture, and make sure that the details you're adding make sense. Use procedural textures to make surfaces varied in a realistic way. Don't be afraid to add your own touch and give your prop a story.



HEG4L DRON
by Xabier Urrutia

TEXTURING WITHOUT MAPS

Xabier Urrutia explains how to merge different passes in an image with KeyShot and Photoshop



XABIER URRUTIA

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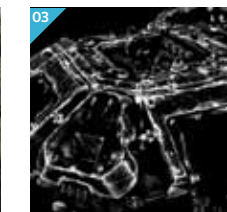
01 Create the clean pass In KeyShot, I import the 3D model from 3ds Max and select and modify the desired materials from the Material Library. I also create some labels that can be projected onto the model to enhance realism and make it look like a practical tool.

02 Render passes In KeyShot, I duplicate the model to create two more passes. First I create a Scratch pass, where I change each material to an aged state. The last pass is simply changing all materials for dry mud. Finally, I render

all the passes from the same camera angle. Mostly I start with one of the smart materials that Substance Painter offers and from there I start to adjust it.

03 Create scratch materials In Photoshop, I put the Metal layer on top of the clean pass. I create a black mask for the Metal layer so that it is invisible and I start to bring the metal out by painting white strokes in the mask. I put the scratches mostly in corners and joints so it looks like it's been used.

04 Make it muddy Over the scratches pass I put the mud pass and I repeat the masking process. I think of places where dust and mud would concentrate most, and I also paint some zones where water drops have carried mud and left some trails. I keep the corners clean and make it dirtier around the modelled mud pieces.



MASTER ENVIRONMENT TEXTURES

Games industry veteran Jacob Norris gives us the lowdown on texturing stunning natural scenes



JACOB NORRIS

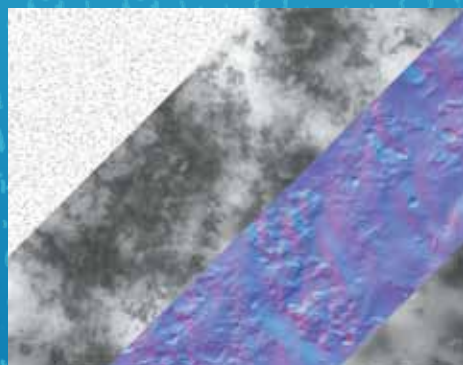
Lead environment artist, NVIDIA
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What drives you to create such beautiful environment textures?

A lot of my inspiration comes from other artists and of course the natural beauty of the world itself. I often find myself saving tons of images from Google of beautiful nature scenes, incredible skylines, or even just a dark alleyway with nice composition and details. It doesn't really matter if it's from real life or digitally created - if it's beautiful, I want to make it at some point!

Can you tell us some of the tools and software that you typically employ for texturing a realistic environment?

There are generally three or four go-to pieces of software that you will find in almost all of my



Forest Snow Ground
by Jacob Norris



creations. First, the tools to create the artwork itself usually fall between ZBrush, Substance and Photoshop. Then of course once the artwork is finished you need something to render it in, so that will generally be either Marmoset Toolbag or the Unreal Engine to show off the artwork in a real-time game engine.

What are the similarities and differences when texturing a natural environment as opposed to man-made environments?

The similarities of course are always the use and gathering of many, many reference images, no matter what the content of the artwork. Also the use of trial and error when creating something new. In some cases I will have created as many as three to five different versions of the same thing just to see what direction I want to go in or what style works best for the scene. It's always nice when it works out the first time, though. As for differences, I would say that for me buildings and man-made things always need to fit into each other with specifically placed walls, doorways, sidewalks and so on. But with nature, you can really have fun with it and compose it however you want. You have so much more freedom. Unless of course it's a destroyed man-made environment and then you can do whatever the heck you want with it.

Which of those two kinds of scenes - natural environments or man-made landscapes - do you enjoy working on more and why?

I personally enjoy the more natural environments, in the sense that they are so much less restricting. Similar to what I mentioned before, I feel like there is so much more freedom when you are creating them. There is a lot more room for creativity and imagination. It can still be very difficult to create natural things, but once you get the hang of it, it's just so much more natural to let the artwork flow out with nature environments.

Can you explain how you went about the texturing process for the snow in your Forest Snow Ground render?

The snow in the scene was textured entirely inside of Substance Designer. It consists of two separate materials, a 'rough-looking snow' that is more beat-up and walked in and a 'soft snow' that feels like it is more naturally laying on the ground. Then there is a detail 'snow flake layer' that is added on top of the material inside of the Unreal Engine.

The thing that really brings it all together, though, is the Subsurface material that I have set up in Unreal Engine 4. The way the light interacts with it and shines through small areas of the snow on hilltops really sells the realism of it all.