ON THE CD
- *Poser* models, scene files and materials

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CINEMA 4D

Ghost in the machine

Our series of horror-themed tutorials continues with this character from the great beyond. Starting with a simple figure model, we explore how to add ghostly wrappings, hair, and a touch of creative magic ...

BY ADAM BENTON

FACTFILE

FOR
Cinema 4D

DIFFICULTY
Intermediate

TIME TAKEN
2-3 hours

ON THE CD
- Full-size screenshots
- Pre-created material
- Key stage scene files

ALSO REQUIRED
Mocca 2 and *Hair* modules. *InterPoser* plug-in (optional)

Ghosts and apparitions don't play as common a part in the horror genre as they used to, but there is still something fascinating about trying to capture the essence of these ethereal beings – especially nasty, ugly ones with ill intentions!

Everyone's perception of a spectre will be different, but a list of shared reference points from popular culture might include the spirits that emerged from the Ark in Indiana Jones' first adventure, particularly at the point that they turned nasty; the mysterious, vengeful pirate ghosts that emerged from *The Fog;* or maybe even those that visited Scrooge on Christmas Eve. One thing that they all seem to have in common – and which adds to the fear factor – is layered, torn and ragged wrappings.

With that in mind, this tutorial aims to harness the power of *Cinema 4D*, specifically the *Mocca 2* and *Hair* modules, to add extra interest and sophistication to a basic figure model.

We will first discover the benefits of creating and using a proxy model as an alternate collider object, instead of the original high-poly mesh, and then use Clothilde, *Mocca's* Cloth simulation engine to help create layers of cloth wrapping with rips and tears in it, forming the ghostly garb of our character.

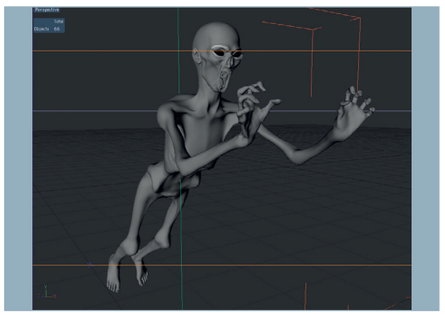
We will also explore what properties help to make such a material more convincingly ghostly, using the advanced layering system that was first introduced to *C4D* in version 8.5.

Finally, we will use the excellent (and surprisingly easy-to-use) *Hair* module to generate a shock of wispy hair, and generate a suitable hair material without having to know too much about the software's full depths.

The project file for this tutorial is based on the horror-themed *Poser* content generously supplied for the CD by DAZ Productions (**www.daz3d.com**). In addition to the original *Poser* assets, the disc contains all the pre-built scene files, materials and full-size screenshots you will need to complete the walkthrough.

Adam Benton is a freelance illustrator and animator with clients in publishing, advertising, educational and corporate sectors. He uses *Cinema 4D* daily at the hub of his artistic endeavours **www.kromekat.com**

STAGE ONE | Creating a proxy model and adding cloth

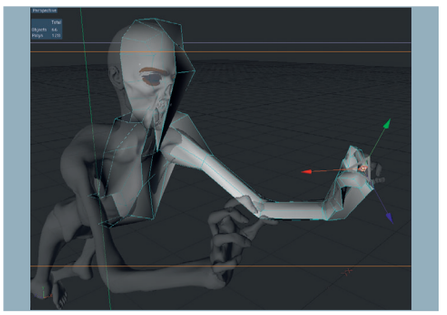


01 We are using a *Poser* character as the basis of our ghost, and have prepared the free Victoria 3 model with some character morphs from DAZ Productions (RawArt's Rawn Zombie) and posed it accordingly. This should be exported from *Poser* as an OBJ, and ideally imported using the *interPoser* plug-in. If you'd prefer to use the version we've already set up, you can open Step01.c4d from the CD.

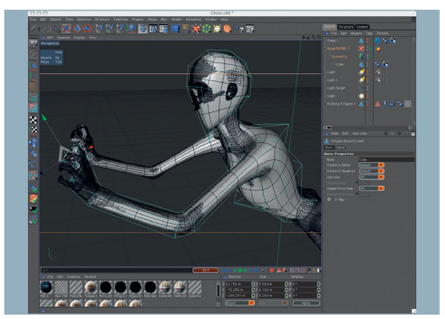
EXPERT TIP

Collision by proxy

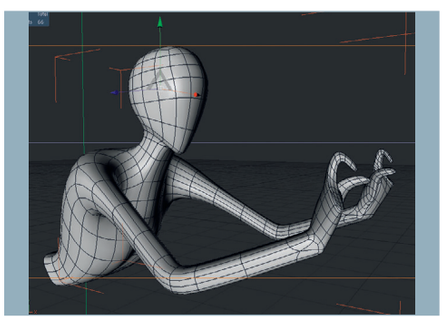
If you have a powerful computer, you might apply the following Clothilde and *Hair* steps directly to the *Poser* mesh, but even our dual 2.5GHz G5 was groaning, so the best solution might be to create a quick proxy mesh to act as an efficient collider object. The benefit of using a proxy object with processor-intensive tasks such as Clothilde and *Hair* is that because of its lower polygon count much faster simulation times can be achieved. It's not necessary to model any details, just follow the primary form it's based on, and only model the parts you need for collision.



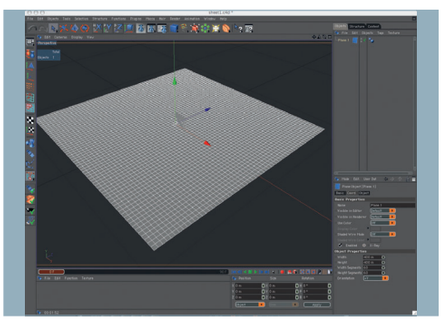
02 Simply start with a cube for the head of the proxy, positioned relative to the *Poser* figure's head, and extrude, scale and rotate polys to follow the form of the figure. Once you have the basic head and torso, use the Knife tool in Loop mode to add defining cuts where needed.



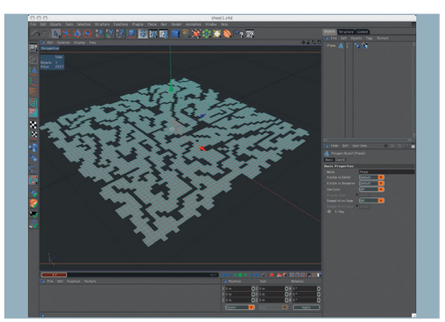
03 If your pose is basically symmetrical, extrude one arm only, and then slice the model in half, placing it in a Symmetry Object. Using the Loop Selection, Move and Rotate tools, it's quite easy to manipulate the points, polys and edges roughly into the same shape as the high-poly model.



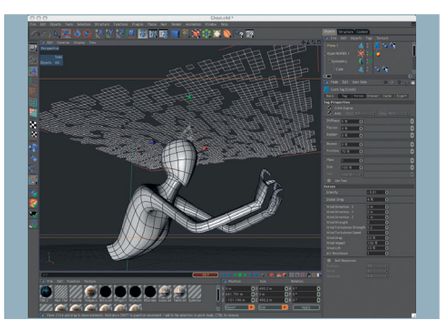
04 Finally, set the HyperNURBS' subdivision to 2 in both the Editor and Render fields within the the HyperNURBS Object Properties, and make it editable. The proxy object is very simple to create using these box modelling techniques and a HyperNURBS object. It should only take about 15 minutes to create.



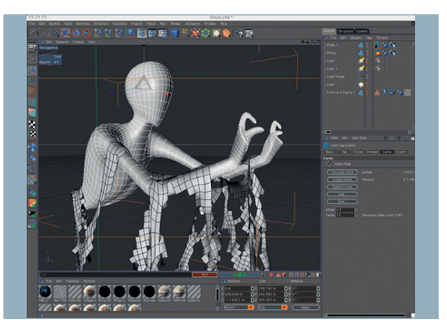
05 We are going to use Clothilde to add layers over the ghost's body, to simulate a torn shroud or cloth wrappings. First turn off the *Poser* model's visibility, and add a Collider Tag (right-click the object > Clothilde Tags > Collider) to the final proxy mesh object. Open a plane object from the Primitive palette, increase its subdivision to 60x60 in the Attributes Manager and make it editable.



06 Using the Live Selection tool, set about deleting random lines of polys and making holes. Extremely long lines are best avoided, since when the object is simulated as cloth, it may fall apart completely, and slip off the collider object. The aim is to create stretchy sinew and threads that will ultimately hang over the proxy's form. You can find the file on the CD as Sheet1.c4d.



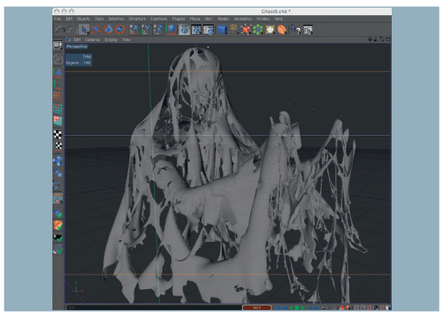
07 For this first layer, position your edited plane object just above the proxy, and keep its size quite large, to envelop the whole form. Specific cloth settings are down to your own preferences, but we gave the cloth a low Stiffness, no Flexion, no Bounce, and a Global Drag of 4%, which prevents the cloth from rebounding during simulation. Click on Cloth Tag > Cache > Calculate Cache.



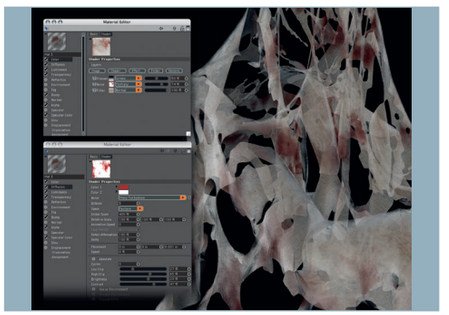
08 If all went well, your torn cloth should have draped over the proxy nicely. If not (that is, it falls further than desired, as ours has in the screenshot above), you can rectify this either by recreating polygons to close some of the gaps in the cloth and/or selecting a point or two on the plane just above the top of the proxy head, and fixing these by selecting Cloth Tag > Dresser > Fix Points.

STAGE TWO | Refining the cloth and the materials

09 Create a 'Cloth Nurbs' object (Mocca > Cloth Nurbs) with 0 Subdivisions and a Thickness of 1, and drop the plane into it; then drop it into a HyperNURBS object. Repeat Steps 7 to 10 as desired to create layers of cloth with different levels of detail, by scaling the original plane object down and placing multiple copies above the head, hands and arms. Vary the Rubber setting for more sinuous strands.



10 Once the desired level of complexity is reached, it's time to consider the materials for the cloth. We scanned an old towelling duster to use for the base material. Making use of *Cinema 4D's* excellent material layering capabilities, we were able to use this base texture (cloth.tif on the CD) for several of the materials properties, adding procedural noise, filters and Fresnel effects.

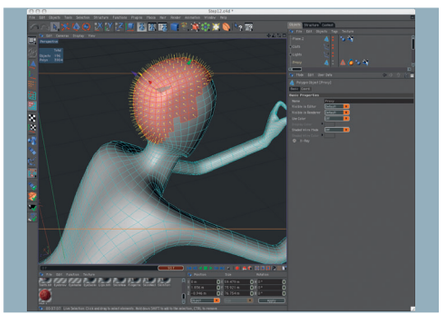


11 Adding a Fresnel layer to the Color and/or Luminance channels gives the material a more ghostly effect. Next, give the material some textural translucency, by copying a greyscale, filtered version of the base texture into the Transparency channel. (See Image11.jpg to Image11b.jpg on the CD for the settings.) Using this method, it's also possible to make convincing bloody tissue for extra gore!

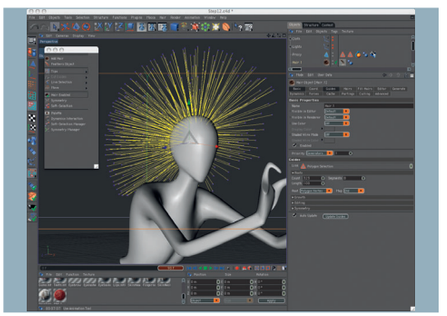
EXPERT TIP

Material layering

The Layer shader can help in creating extremely complex and realistic materials, as it allows the blending of multiple effect shaders, noises, bitmaps and filters. These layers can themselves be contained inside more layers for an almost limitless variety of effects. Often a simple combination of a procedural noise multiplied over a tileable bitmap can help to break up any repetition it might have. Complex layers can then be copied from one channel to another – which can then be tweaked for minor changes that benefit that particular property.

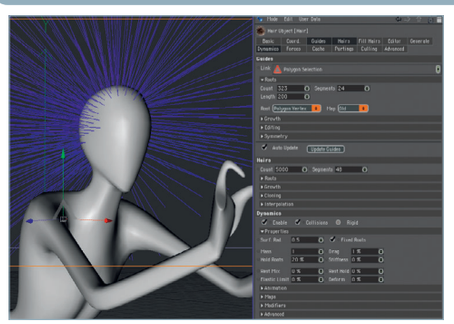


12 Turn off all the cloth layers' visibility, go into the Cloth Tag settings, and click on Init State under the Dresser tab, then deactivate the cloth engine within the Cloth Tag > Tag Properties to fix them in place while you simulate the hair. Reactivate your proxy object, since you will use this again for faster hair simulation.

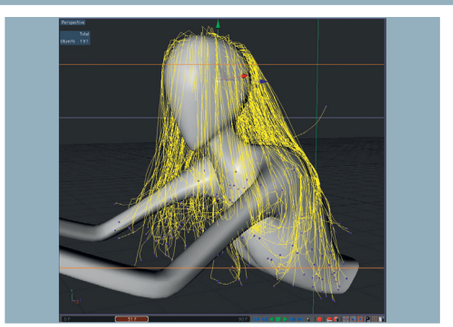


13 Using the Live Selection tool, select the area of the head where you'd like hair to appear. Make the *Poser* model active so that you don't end up selecting polys on the proxy object that correspond to its ears or forehead. Once you have all the polys you need selected, go to the Hair menu, and select Add Hair.

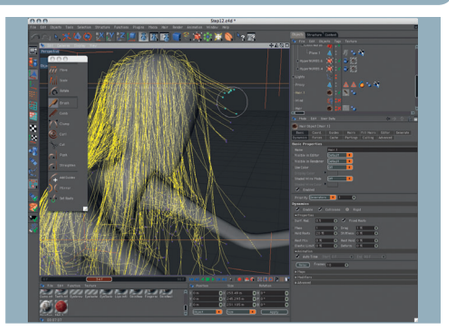
STAGE THREE | Styling the hair



14 Click on the newly created hair object to tweak the settings. First, double the Length of the guides to 200, since this controls the true length of the actual hair, and increase the Segments from 8 to 24. You probably want the hair to look quite fine, wispy and lay flat on the head, so adjust the Hairs and Dynamics settings accordingly, with lower Hold Roots and Stiffness values, as shown above.

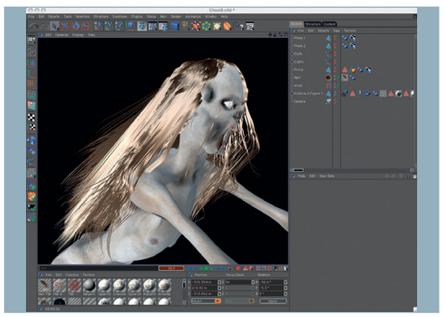


15 Now play the animation, and either let it play through to the end, or when you see a shot you like, stop it there. There will be some areas of intersection which will need editing either by using the Cut or Brush tools in the Hair palette. Remember to fix the current position of the hair first by selecting Hair > Edit > Set As Dynamics.

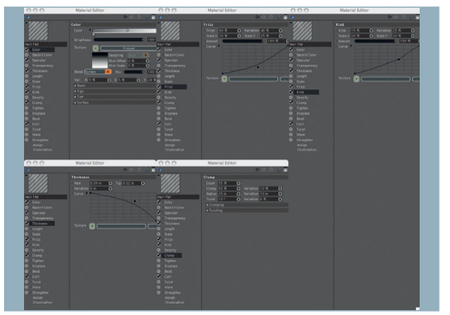


16 Use the Brush tool to pull intersecting hairs out of the proxy area, and use the Cut tool to trim them off to required lengths. The trimmed hairs can now be brushed back towards the head. You could spend more time shaping the hair, but as this is meant to look like a ragged old ghost, it's probably best to leave it quite rough and unkempt.

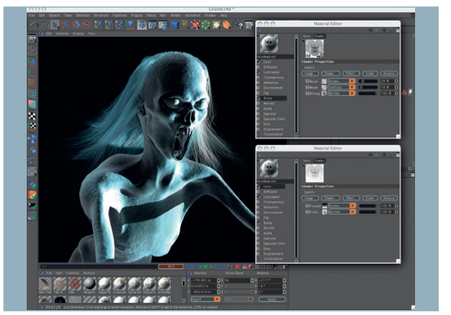
STAGE THREE (Continued) | Styling the hair



17 Turn the original *Poser* model back on for clarity, along with the stringy cloth if desired. The hair material makes all the difference to the overall look; as you can see, the default settings are far from suitable. Open the Hair Material and start by editing the colour from its default browns to tones of grey.

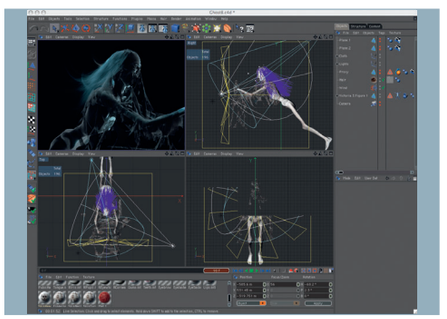


18 Use the Thickness property to make the hair much finer and edit the Curve to alter how the thickness settings are applied. Use a relatively even fall-off with a slope to a finer point at the bottom of the hair strands. Frizz and Kink add random behaviour to the hair, as does Curl, and Clump helps the hair strands group a little rather than looking freshly combed. See Step18.jpg for the settings.

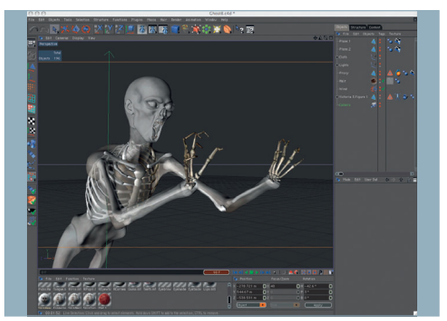


19 Add some lights to show off this ghostly hair to greater effect, and to create an unreal atmosphere. You can also augment the original *Poser* textures with some layered noise, as well as the same Fresnel technique used on the cloth. This further enhances the illusion of ghostliness by highlighting all edges of the mesh.

STAGE FOUR | Adding the final touches



20 If you feel you need more movement in the hair, you can also use the various Particle Force Objects such as Wind (Objects > Particle > Wind). We used this technique to help blow the hair back a little and raise it to create a subtle sense of motion. (To see these adjustments in action, refer to the final scene file on the CD: final.c4d.)



21 We weren't happy with the hands on the original *Poser* model, so we deleted their polygons, and imported DAZ Productions' V3 Skeleton (included on the CD) in exactly the same pose, removing everything apart from the rib cage, collar bones, arms and hands to add more interest to the ghost's body.

22 We also went back and did some more work to the stringy cloth over the hands to ensure that the fingers' details were clearer. We recalculated the cloth using the actual skeleton mesh as the collider, in order to drape the cloth over all the finger joints. The simulation time was still less than it would have been over the full *Poser* body mesh, since Clothilde only had to calculate the remaining skeleton polys. Other finishing touches included further tweaking of the hair and cloth, including deleting a few cloth polys that obscured the features of the ghost. In this render, with only the cloth and hair visible, it's possible to see just how much extra detail and character was added to the *Poser* model using just these techniques. To see the results of these refinements, load final.c4d from the CD.