



5

Preparing Projects

What's in this Chapter:

Taking Photographs68



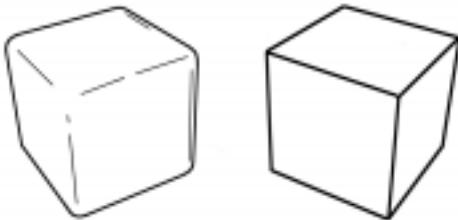
Taking Photographs

Good photographs are an important part of using Canoma to create models. As you venture on your own to make photographs, here are a few suggestions to help assure a successful project.

What Works Best

Canoma does best with objects that have sharp corners, rather than round ones. The trouble with round corners is that you can't really tell exactly "where the corners are". This is especially true if you have multiple images.

Canoma expects you to pin the same corresponding points in all photographs. Sometimes you can fake it and use beads or other techniques to tell Canoma where corners might be located. However, if you keep "sharp corners" in mind, you won't be disappointed.



Canoma works best with sharp corners. The object on the right has sharp corners and will give the best results when modeled.

Using Several Photographs

One of the best pieces of advice is not to be afraid of taking too many photographs. Photos are cheap, especially in this age of digital cameras, compared to redoing a photo shoot. Inevitably, some photos won't turn out as well as others and you're bound to need detail where you didn't expect to need it. The best

reward for taking as many photos as possible is the time and frustration you'll save when you have lots of choices during modeling.

Varying the Angles

When you take several photographs of a single object or building, try to take them from very different angles. For example, take one from the front, then another from the side at a 90 degree angle from the first. This allows you to put pins for the same corners in multiple images, allowing Canoma to give you precise models.

Using a "Panorama" Approach

When you take photographs of a room or enclosed space, stand in one place and take some from the same position. Turn your head a little bit each time, just like you would if you were creating a panorama.

As you use this approach, make sure that you have some overlap between photographs. In particular, make sure that at least one object is visible in any pair of adjacent photographs. This is because you have to match up a model made from one photograph with something in the next photograph. Having an object on the left or right border makes the job much simpler.

Tip

It is also a good idea to create pictures with different exposures, in order to avoid big contrasts later. That way, you can select those that match best.

Working from Overviews to Detailed Photos

Overview Photos

Be sure to take plenty of overview photos. When you start modeling, you should start with an overview photo. Using overview photographs can make initial modeling easier. It can be difficult starting with a close-up view.

As you take overview photos of a scene, try to get at least some objects fully into view, so you can see their corners. If you cannot see corners, make sure you can at least see edges, for example where two walls meet or a wall and the floor. Also, try not to get too far away from the scene, since details fade and distortion sets in the further away you get from your subject.

Tip

Although most digital camera don't offer extremely wide angle lenses, scanned photographs where wide angle lenses (28-35mm) were used can introduce spherical distortions—where lines become curves. When this happens, precisely matching things in the photograph becomes difficult. Canoma can not undo these types of distortions.

Detailed Photos

When you need for a particular object in your model to have better textures, be sure you take extra close-up photographs of that object. When taking close up photos, try to keep the whole object in the photograph. Also, try to take a close-up from right in front of the surface.

For example, say you want to get a high-resolution version of a painting on your wall. Let us assume you already have pictures of the room, complete with edges and corners of the walls, which you used to model the wall and painting.

Take a close up image of just the painting, making sure you see all of it and perhaps its frame. Add that close-up to your model and pin the corners of the painting. Canoma automatically uses your close-up shot to get the best texture resolution.

Don't Move Things

This sounds simple, but try to take pictures of the same things. Don't move chairs, boxes, cars or anything while you're taking pictures. Canoma assumes objects do not move between photographs.

One Photo, One Image File

Use only one photograph per image file. If you used a scanner to digitize photos, don't scan more than one photo into a single image file. You can't load an image that contains several photos into Canoma and expect a successful modeling session.

If you did capture several photographs in one scanned image, you may need to split, rotate, edit or crop your scanned photos into individual image files. Save them as BMP or JPG, approximately 800x600 resolution, which works out to between 100-300Kb per image.

Modifying Photos

Even the best photographs sometimes need retouching. This can be especially useful when you're using a single image or have historical photos to use for modeling purposes. You might need to remove scratches, fine-tune colors, or

colorize old photos, using an image editing tool, such as Painter or Photoshop. Should you need to edit photos, remember these important tips:

- Never change the aspect ratio or dimensions of a photo after you've already started using the image in a Canoma project. Canoma can't compensate for a distorted photograph.
- If you're using more than one photograph, be careful to adjust color, exposure levels, or lighting so that the photos match after you've finished editing.
- Avoid cropping photos. It's better to have lots of photos, with varying detail than to try and "crop out" images of objects within a photo. Canoma may get confused if all you feed it is bits and pieces of photographs.
- Avoid using photos with white borders or photos that were scanned from a book that include superfluous materials around the image you're scanning (such as bits of text.) White borders are common in older photos and Canoma treats the border or extra material as part of the image to be modeled. For best results, remove the white borders or superfluous material before loading the image into Canoma.

Controlling Exposure and Lighting

Try to use similar exposure and lighting settings for all the photographs of a scene or object. Canoma compensates for somewhat different lighting between photographs in fancy texturing mode, but it can't make the difference between sunny and rainy day photographs disappear.

Things to remember:

- Control contrast by putting small light objects on top of dark backgrounds or small dark objects on top of light backgrounds.
- Watch out for glare! You don't want glare to bounce off of shiny parts of important objects, obscuring necessary texture details.

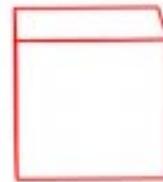
Handling Camera Location

If you can, take some photographs from slightly above your objects. If there is a block-like object in the scene, it is best to show 3 sides of it in the photo, because that allows you to put more pins onto a single box.

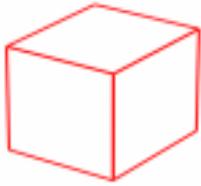
Make sure you see the bottom edges of objects or the floor in some pictures. Canoma works much better if you can point out some bottom corner or edges with pins or beads. Without that, wireframe bottoms might wobble around.



Photographs from this angle give very poor results.



This angle would be a little better, but not much.



Three visible three bottom corners gives excellent results.

