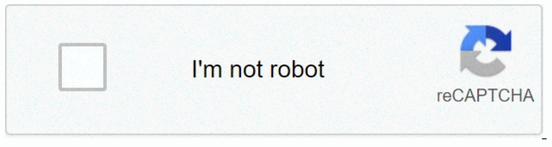

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Tutorial agisoft photoscan indonesia pdf

This tutorial shows how to generate your first ortho mosaic and/or DEM with Agisoft Metashape Professional without the use of Ground Control Points (GCPs). Open: In English this tutorial illustrates how to produce your first georeferenced orthomosaic and/or high quality DEM with Agisoft Metashape Professional, provided you have ground control points (GCPs) data. Open: In English in Russian This tutorial illustrates how to use markers as checkpoints for referring and as checkpoints for accuracy validation in Agisoft Metashape Professional. Open: In English This tutorial shows how to create your first 3D model of an object with Agisoft Metashape. Open: In English in Russian Since I started fooling around with Agisoft's Photoscan a few months ago and started posting experiments on Instagram, people have been asking me about my workflow. I've been hesitant to post about it, let alone write a tutorial, for a simple reason: I had no workflow. I've experimented with scanning outdoors, at home, with and without turntable, decimating or retopo-ing models, and with different ways to extract cards. Lately, though, thanks to some expert tips from photogrammetry guru Tristan Bethe at Humanalloy, I've started arranging a workflow that might be worth writing about. First, this is an approach that works for small, freestanding objects to be used as 3D assets in scenes-fruits and vegetables, bread, small sculptures, wooden bowls, etc. Scanning large objects, trees, ground surfaces, facades or objects without volume, such as leaves, requires a different workflow and, in some cases, much more complex equipment. Same if you want to use photogrammetry to create versatile tileable textures (something I've also experimented with and can write about later). Second, this is a down-to-earth, shoestring approach that will yield fairly accurate 3D models, but not multi-million-poly samples accurately to the millimeter. It's not about anything special, like cross-polarized lights to extract reflectance cards, which are needed to get very high-end results. In fact, the point of this approach is to generate retopoeed models that won't overload a large scene, but which, thanks to extracted displacement and normal maps, will still render convincingly in fairly tight close-ups. Let's start with one of my newest models: A handsome rock picked up in a Berlin park last weekend. For something like this, I'll use a DSLR (a full-frame Sony A7) with a sharp 50mm prime lens, which is literally the only pricey piece of equipment in my setup-well, apart from the software, that is, but if you're reading this, I assume you're fitted on that front. You also have a tripod a turntable (in my case a turntable of € 20), a light tent (in my case a foldable Ikea box of € 18.99), a cheap ring flash (I have these for € 49.99) and/or a set of four photography lamps (these put you € 29.99 back for a pair). A problem in small objects is to get rid of shadows. In my approach, which consists in scanning the same object twice in two different positions to capture all sides, top-down shadows can make Agisoft think it has to do with two different objects. Also, you don't want shadows in the textures you take out of the model. Getting rid of shadows is difficult. I initially tried to do it by placing two photography lamps on each side of the object and two next to the camera pointing at the object. It works pretty well. But over time, I've found a ring flash to work better. Because the light comes directly from the lens, all shadows are hidden from the camera, resulting in a satisfyingly flat look. The setup is also a lot faster, allowing shorter scanning sessions. And while photography lights generate tons of highlights on reflective objects, making it often necessary to cross-polarize, the ring flash generates only a weak highlight to the camera. In many cases, the fresnel effect means that this zero-degree angle reflection is very weak, making it easy to remove in the post. Using a turntable instead of turning the camera around the object also helps even out the lighting. The flip side of a cheap ring flash is its low strength. But that doesn't matter because using a tripod means you'll set the exposure as long as you want. In general, you want to allow the smallest lens aperture your lens (I always try for 22) to expand the DOF and maximize the sharpness of the image. This can mean an exposure of a few seconds per image (lower if your studio has decent ambient light on top of the flash). Normally I place my model and turntable in a light tent to turn off the lights even more and get the most neutral background possible, but it is not strictly necessary. If you have a long exposure, use a remote control to activate the camera and minimize the camera. Once you've photographed your model from all angles, rotate the table by about 10 degrees, put the object on its head and shoot a second batch of images. The resulting two batches of images should relate to your object from all angles-left, right, top and bottom. Here, DSC01582.jpg marks the beginning of the second batch. In Photoscan, we start by scanning the first batch of images with the model in a straight position (I'm not going to go into how to use Photoscan as there are lots of big tuts online about it). The turntable is meant to fool Photoscan into thinking that you shot the object from many different angles, even though your camera is actually static and rotates the model. Sometimes, however, if your not neutral enough, photoscan will pick up details in it and assume, rightly but annoyingly, that the camera was static, resulting in an unspeakable mess of a sparse cloud. To avoid this, you may want to pull a very simple mask around your object on each photo using the rectangle masking tool just to get rid of this Details. No need to mask the turntable because it rotates with the object (in fact I've found that on tough models, the wood texture on my cheese board gives Photoscan additional reference points). This first scan is only used to generate a perfect mask for the object, so I use low dense cloud and mesh settings to quickly deliver a rough, low-poly model. Before you generate the grid, you need to clean the dense cloud of each track of the turntable, as shown below: Once this is done, import masks for each photo using the model option and export these masks to your photo folder. From here, discard the project and repeat the procedure for the second batch of images with the object on its head. You now need a perfect mask for each image in both batches. Time to bring all these images into a new Photoscan project. After importing the previously rendered masks for all images–this time using the out of file option-rotate the photos in the second batch 180 degrees (this is not always necessary, but I found it made it more likely that Photoscan would recognize both parties as being from the same object). Alternatively, and this is a slightly faster workflow, you also use masks only for the first batch of photos and then use only a hand-drawn rectangle mask on the reverse photos. This leaves parts of the turntable visible on the second batch of photos, but that's fine as long as it's not visible in the first batch. If the turntable is visible in both batches, however, Photoscan will go crazy. With any luck (and make sure to click on the limit by mask option when aligning), Photoscan can now align and scan the photos and generate one solid model that combines the top and bottom of the object. (My camera rings crosses below, because I didn't exactly put the rock on his head in the second batch, but more on his side-something to avoid if possible to maximize coverage). If you used the method where you only render masks from the first batch, you must remove all the bits of turntable that remain in the dense cloud before you resan it. For a fairly good model, I use a high setting for the dense cloud and the highest number of polys available for the resulting mesh. For the rock, it works at about half a million polys. We are now halfway there, with a nice, high-poly, triangulated asset. The next and final step would normally be to calculate a diffuse texture. The problem is that Photoscan will assign the model pretty annoying automated UVs before you do this, making it impossible to edit the map in Photoshop. The solution-friendly provided by Tristan Bethe-is to import and edit the mesh in ZBrush before re-importing it into texturing. ZBrush is perfect for this, as it not only allows you to clean up your scan and remove annoying artifacts, but it also does a great job of automatically re-setting the mesh and unpacking sensible SUVs. It almost feels like ZBrush was designed Edit 3D scans. First, import the net from Photoscan in ZBrush, then duplicate it into a second subtool and hide the first version. I use ZRemesher with a setting of 5 to generate a nice, mid-poly version of the tool with an all-quad topology. This is the model I will use in my future scenes. Then cut out a few polygroups, which will define the object's UV islands (two will be fine for our rock, but you may need more if the object has a more complex shape). Using the UV master plugin you can now automatically unpack your model. You now have both clean topology and easily editable SUVs. For the next step, dodge the high-poly sub-tool and subdiv your low-poly version once (Ctrl + D). By pressing the project all button in the subgroup menu, the low-poly model meets the high-poly button. Repeat these subdiv and project steps until your retopoed mesh has about the same number of polys and the same amount of detail as the original net. To be on the safe side, this is when I normally export both a fully subdivided version of the retopoed mesh and the low-poly version with zero subdiv levels. With your retopoed mesh now dialed back to the lowest subdiv level (the low-poly version), you bake 4K displacement and normal cards directly into ZBrush that will contain all the details of the high-poly mesh. Back into your Photoscan project, import the new grid (whether the low-poly or high-poly version doesn't matter now because they have the same UV's). You now calculate the diffuse texture, to use the 'uv' option to prevent Photoscan from unpacking the model again. This is it, actually. You now export the diffuse and edit, in addition to the normal and displacement cards, in Photoshop (make sure to mirror the ZBrush-generated cards vertically as they always come upside down by default) and paint a reflectance or glossy card, using a combination of displacement and diffuse maps. All you have to do is import the lowpoly mesh into Max, scale it again as needed and build a shader using your cards. Depending on your needs, the renderer you use or the complexity of your scene, you use the normal card to add high-res details to your low-poly mesh, use the elevation card for displacement or bump, or simply work with the high-polygaas if you need super-detailed close-ups. In all cases you have a nice all-quad, animation-friendly, topology and clean, easy to edit UVs. This rock is slightly translucent, so I use an SSS material. The render below is only with normal card. No displacement. Et voilà. With a little practice and some trial-and-error, this should be no more than an hour or two per model on average. I hope you found this useful. As always, let me know if you have a question and I will try not to pass too many years before you respond. Respond. Respond.