
Structured light scanning

- Open Skanect. The shortcut is in the '3D workshop' folder on the desktop.
- On the 'Prepare' screen select 'Object', leave the other settings as they are and press 'Start'.

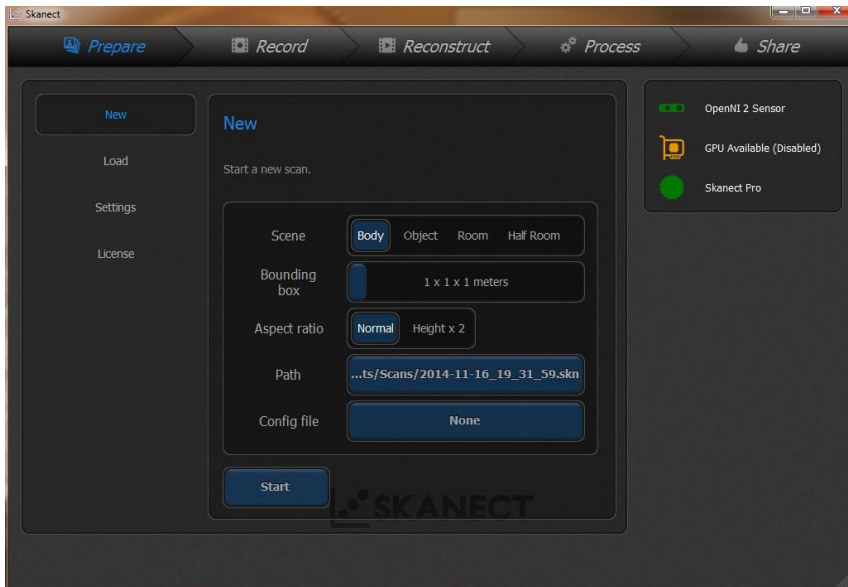


Image: Skanect's 'prepare' screen

- On the next screen you'll see the view from your scanner, you'll also see a 'Record' button (a large square button with a circle inside). Point the scanner at your object then press 'Record'.
- After a short delay you'll see Scanect's scanning view.

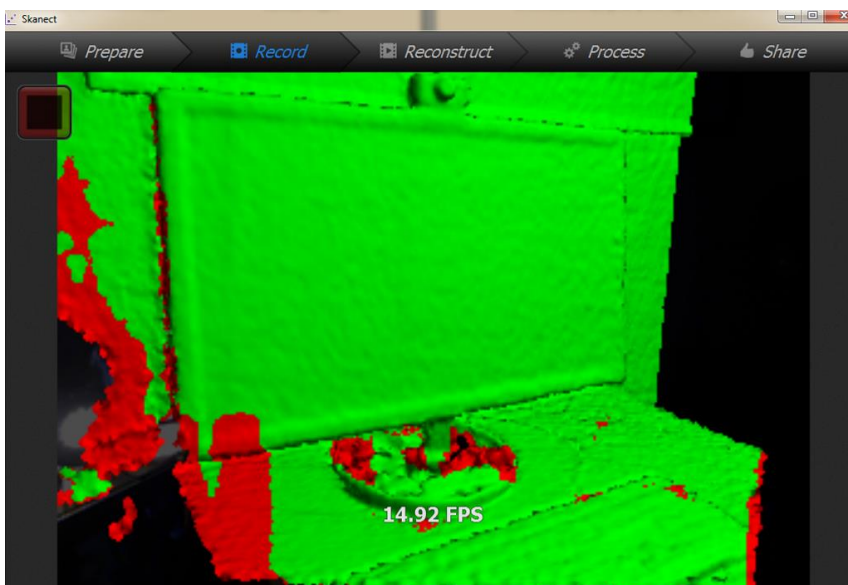


Image: Skanect's scanning view (the 'stop' button is shown top left)

- The colours of the scanning view are important. Your object should be green when it is the correct distance from your scanner. Red is too close, blue is too far away. Move the scanner slowly around the object and you will see detail being 'painted' into the view. When you feel you have sufficient detail press the 'Stop' button (the square within a square).
- The next screen will show you the information which has been captured as a grey model. You can move around the model to examine it with the left mouse button. Using the right mouse button you can move in and out. If you decide the scan wasn't good you can press the 'Bin' icon to delete it and repeat the scanning process. Once you are happy with your scan click 'Reconstruct' on the main menu.
- Click 'fusion' and then 'run'. Wait for reconstruction to complete.
- Now click on 'Process' from the main menu.
- Now click 'colorize' and then 'run'.
- Next click on 'Share' from the main menu.
- Now click on 'Export Model', pick 'OBJ' format and for colour pick 'Texture UV' then 'Export'. Select your desktop as the save location and hit 'save'. Export may take a few minutes.
- Depending on how much time is remaining, you may wish to repeat this whole exercise, a second attempt is often much better than a first try!
- If you'd like to upload your model to Sketchfab, to be viewed online, go to the final section 'Publishing 3D content via Sketchfab'.

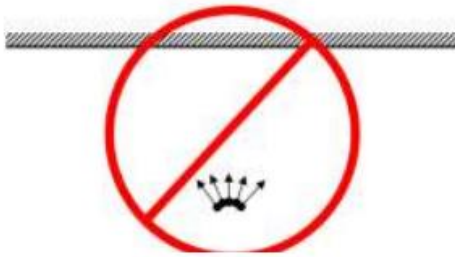
Laser scanning

- Place your object onto the laser scanning turntable.
- Open MFStudio, the link is in the 3D workshop folder on the desktop.
- Select 'New project' and save your new project e.g. to the 3D workshop folder on the desktop. Give it a meaningful name.
- Now click on 'new scan'.
- Under 'Geometry Settings' click adjust the first slider until the exposure looks right.
- Be aware of how long the scan is estimated to take. When you're ready click 'scan'.
- Wait (sometimes for a long time)
- When the scan is complete, you'll see the 'Point Cloud' view
- Go to 'Mesh' view and click the 'Mesh' button. This step will 'join the dots' of your point cloud to generate a polygon and texture file in .obj format.
- When this process is complete click on 'file' then 'export'. Name the .obj file and save it to the '3D workshop' folder on the desktop.
- If you'd like to upload your model to Sketchfab, to be viewed online, go to the final section 'Publishing 3D content via Sketchfab'.

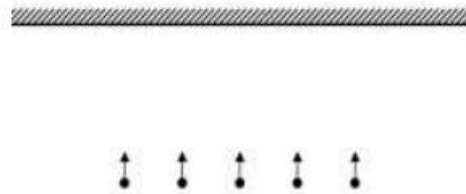
Photogrammetry

- Photograph your object using the following as a guide. **Ensure an overlap between images of at least 30% (50% is better)** - but remember the more photos you use the longer processing will take. Around 25 should be your maximum. Ensure that your camera/phone is set to 'manual' don't let the camera/phone arbitrarily 'improve' each photo in an inconsistent way (e.g. different colour balance for some images).

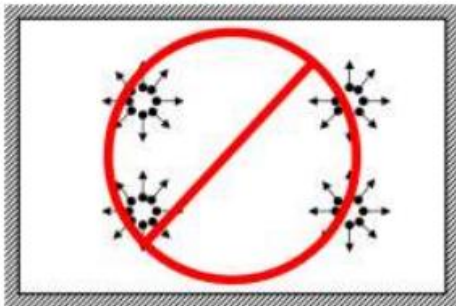
Facade (Incorrect)



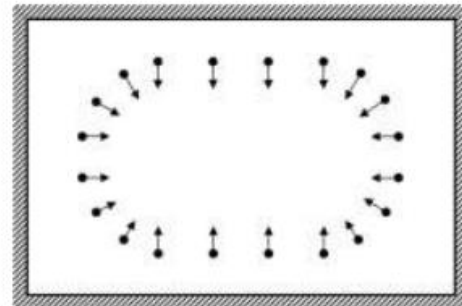
Facade (Correct)



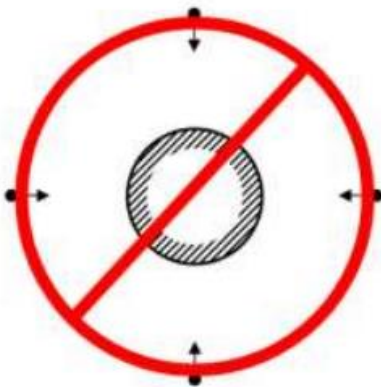
Interior (Incorrect)



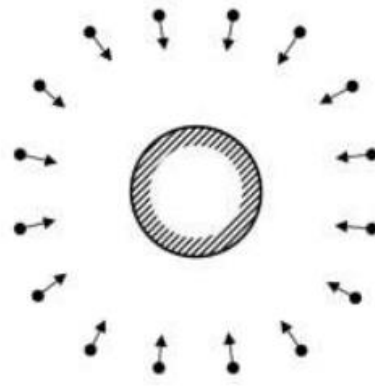
Interior (Correct)



Isolated Object (Incorrect)



Isolated Object (Correct)

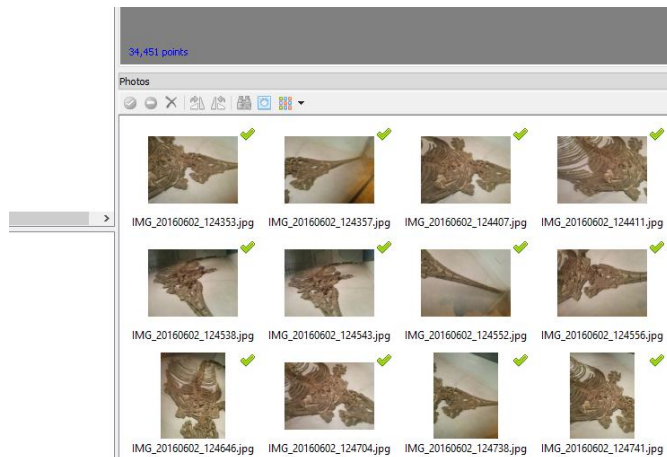




Collection of sample photographs. These were used for the 3D model at <https://goo.gl/QarVbK>

Once you have copied your digital photographs to your PC, proceed to the next step.

- Open Agisoft PhotoScan. The shortcut is in the '3D workshop' folder on the desktop.
- Click the menu item 'Workflow'. Then select 'Add Photos'. Select all your photographs and click 'Open.'
- Again click the menu item 'Workflow' then 'Align Photos'. Leave the default values of the pop up box then click 'OK'. You will now have to wait a few minutes for the computer to recognise the 3D objects in your photos.
- The software has now guessed where the camera was, by comparing the different viewpoint of each photograph. Most of your images in the lower pane should have a green tick next to them (see image).



- Ask an instructor to look at your results, there may be some fine tuning needed at this point!
- Next, click the menu item 'Workflow' then 'Build dense cloud'.
- If you can't see your dense cloud once you've created it, select 'View' from the menu and then 'View dense cloud'.
- From 'Workflow' select 'Build mesh' and keep setting at the default.
- Once this step is complete, you've built your 3D model!
- You will next create the coloured 'textures' to warp around your model. Go to 'Workflow' and then 'Build texture'.
- The last step is to export both the model and its textures. Go to the 'file' menu then 'Export model'
- Select where you want to save the exported files e.g. the '3D workshop' folder on the desktop. You should give your model a meaningful name. Keep the defaults they are and click 'OK'.
- If you'd like to upload your model to Sketchfab, to be viewed online, go to the final section 'Publishing 3D content via Sketchfab'.

Publishing 3D content via Sketchfab

- Before proceeding, you'll need to '.zip' up your model, its .mtl file and all of its textures.
- You'll also need to create a free account with Sketchfab. After today you can delete this account if you wish.
- After logging in, press the 'Upload button' then select your .zip file. You'll be notified when upload is complete. Click 'continue' to view your model.

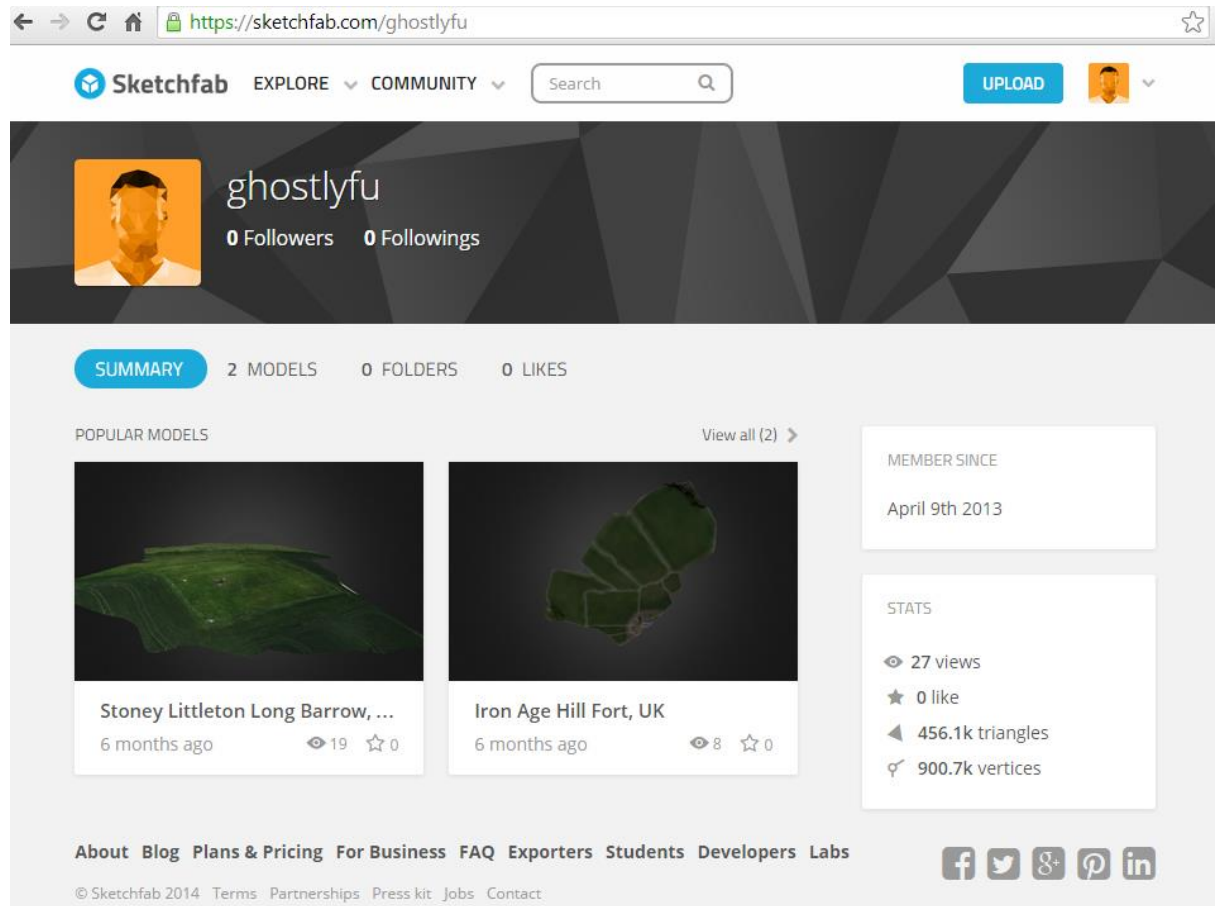


Image: Sketchfab's main screen

- Take some time to try out Sketchfab's different viewing options. The social media and embedding options can also be very useful.