

doppelgaenger

MANUAL

ALPHA 0.2

Intro

Doppelgaenger is a tool to generate a 3d face model from photos using one of the shelf face trackers. The idea behind is to quickly generate a mesh for background characters or as a reference or bake source for more elaborate character modeling.

This whole project is again born from a “what if” idea, and the need for some own future personal projects.

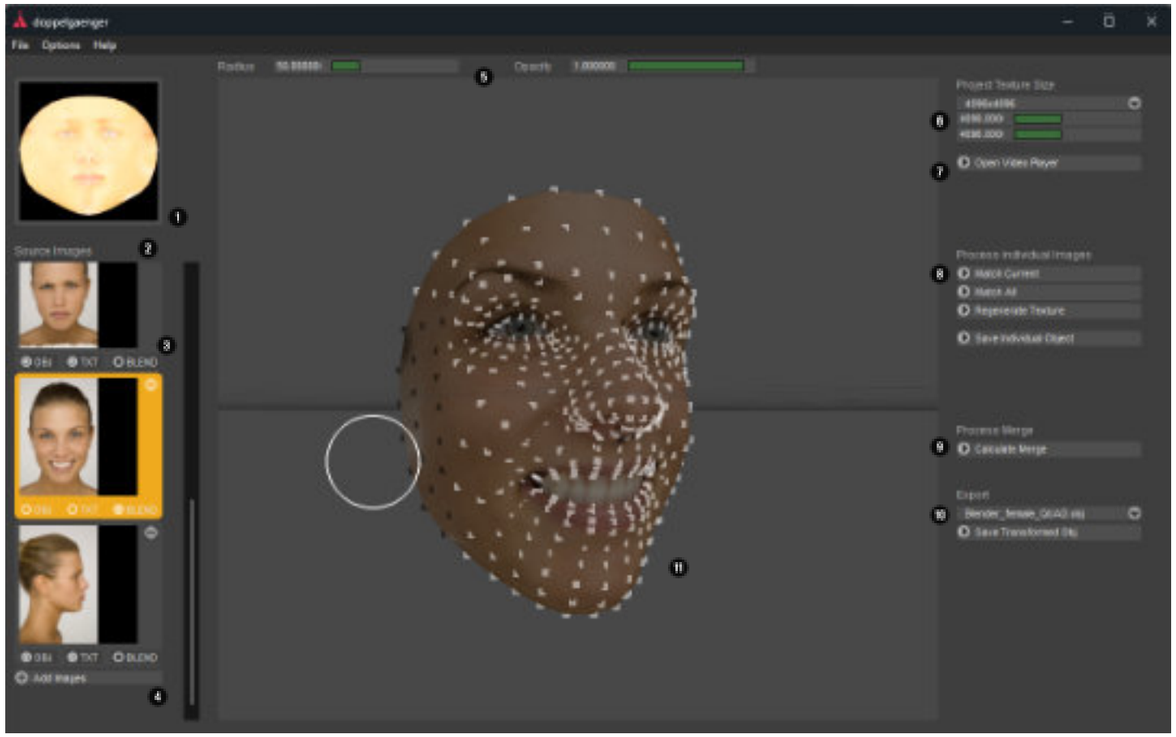
Like with all projects future development depends on the resonance or if I need some personal improvements in it. Crediting of usage is very welcomed, but you don’t have to.

Anyway I hope you find it as useful as I do, and, more important, have fun with it.

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The main interface



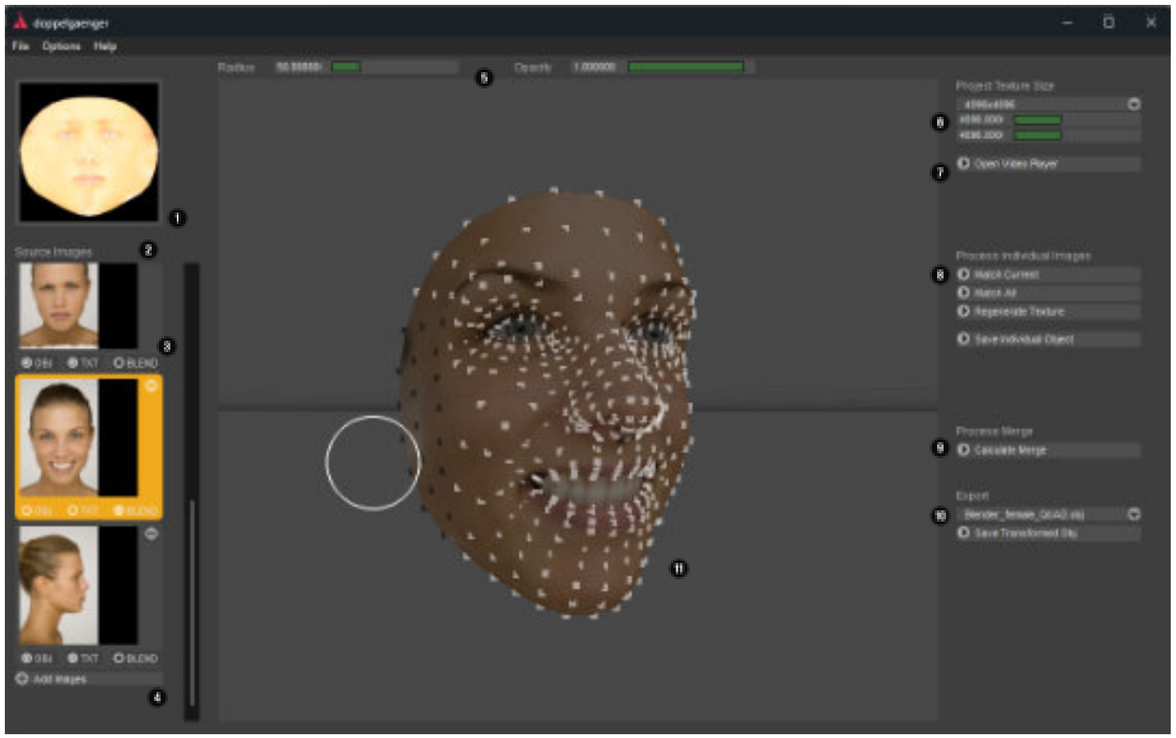
1. The calculated result, empty at start. You can click on it to display the mesh in main view

2. The source panel. All source images loaded are displayed. Select one of the images, to calculate a match or display and edit the 3D model. Use the minus icon on the top right of each image to delete it from the sources.

3. OBJ TXT BLEND checkboxes define how the image contributes to the calculated result.
If OBJ is selected the shape will contribute to the resulting mesh contribution TXT will affect the final texture, and BLEND will create a blend shape.

4. Add image opens the explorer to add images to the source images,or simply drag and drop images to the main view to add them.

5. Brush radius and Opacity are for the wight brush in the main view, and define its size and how much it affects the mesh weight. This weight defines how much the landmarks of single meshes contribute to the final result.
For example if you only want the blend shape of the mouth to be added to the final result, mark everything as 0 (black) and only the mouth part as 1,0 (white)



6 Project texture size defines the size of the individual and resulting textures of a mesh. Please set it before you do any matching / calculating the result

7 Opens the video player. Explained in the next section

Process individual images section is the face match section:

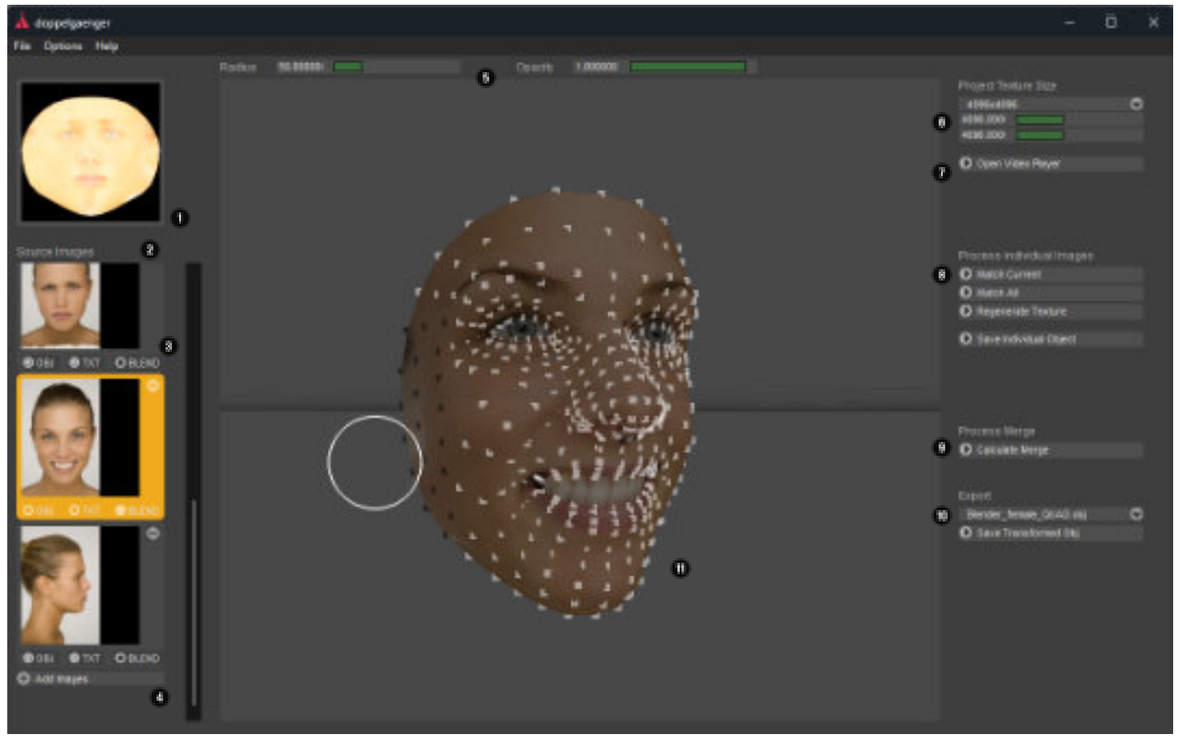
8 Match current. Matches the landmarks to the current selected image

Match all, matches all images. If you assigned weights previously those are overwritten

Regenerate textures does recalculate the texture based on the weights. This is mainly for preview. Once you hit Match all this will be done automatically.

Save individual Object will export the current selected object and texture as an obj and EXR file.

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9 Calculate Merge
This is where each individual mesh texture and blend shape is merged into a single object. Make sure you matched at least one object before hitting that button.

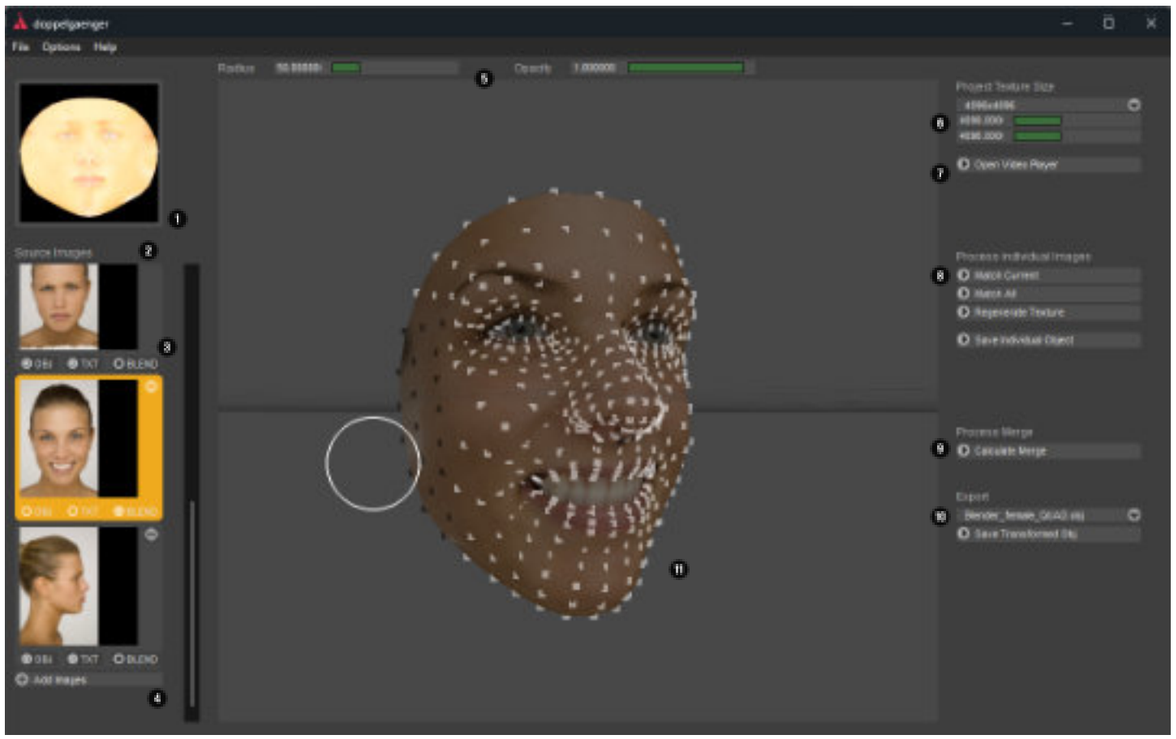
10 Export
The popup allows you to define what type of object you want to export. Either just the face or it being attached to an object. Those options represent OBJ files found in the obj subfolder in the program directory. If you want to use your own base meshes you can do it. With the following requirements:

The vertex position (NOT the order) of the face part of the mesh has to be at the same position.

The first UV space has to be reserved for the face

The surface name of the face polygons have to be “Face”

Save Transformed Obj will export an OBJ, an MTL File, the texture as an EXR and an FBX which also contains the blend shapes (OBJ does not support that)



11 The main view

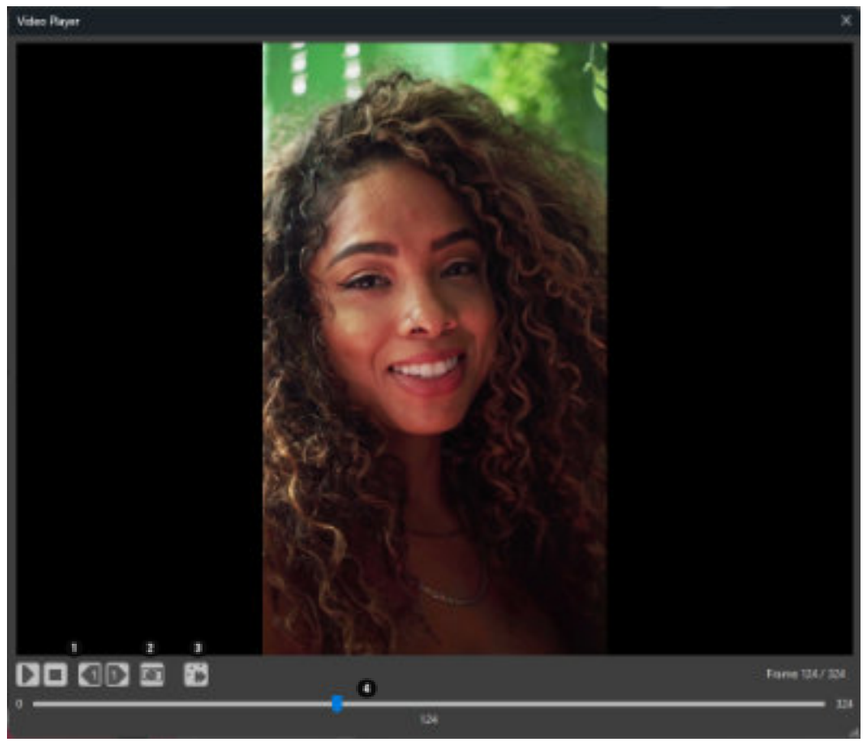
Here you can inspect the individual or the resulting mesh and define which part of the mesh contributes to the result. White landmark points contribute fully to the result while black do not contribute.

Use middle mouse button or right button and drag to rotate around the mesh
Use left mouse button to paint the weights.

Hold the ALT button while painting to invert the brush weight.

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The video player



When you open the video player it first opens an file explorer to open a video file.

1. The usual video playback controls, play, stop, frame backward and forward. Hitting stop twice will set the video position to 0

2. The capture button. Hitting the camera symbol will frame grab current frame and add it to the image list in the main view.

3. MDD Tracker: Highly experimental feature. It exports a mdd file (For just the face mesh) from the current playback position to the end.
Its not production ready, so be warned.

4. The playback bar to scrub through a video.

The usual workflow

1. Click and drag your source images into the program
2. Select the appropriate texture resolution
3. Hit “Match All”
4. Go through all images and paint out areas which are occluded, have texturing artifacts etc
5. Set the contribution checkboxes
6. Go through all blends and remove parts which should not contribute to the blend shape: EG the face border should not wobble when you apply a mouth morph.
7. Hit Calculate merge and check the result for errors.
8. Set the export mesh and hit “Save Transformed Object”
9. Open the FBX and refine further

Troubleshoot

- DLL missing error. Some libraries used need the vcredist provided by Microsoft. I don’t provide it, since I think it is better you install it from Microsoft itself to make sure you get the newest version. Make sure its from Microsoft directly, and not some unsafe 3rd party.

- Crash at start. Seems a problem with non NVIDIA GPU. I will inspect it further

- MDD wobbles, great if you want a glitchy hologram but not so great for production use:
I know, this was more of a second thought to implement this, will investigate further

- Mesh is low res. Yes, its on my long term plan to tackle this issue.

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A modified Human Reference Mesh, released by Blender Studio (studio.blender.org) under a CC0 license

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