Usage of Autopano Giga from MistikaVR

Connect MistikaVR to APG

In MistikaVR, use the “File”>”Options” from the MistikaVR main menu. In the Options window, Select the “show window to configure external Stitch applications” toggle, so the next time you use the “use external stitch” command, you will be offered APG as an option.

APG Configuration

Autopano Giga (APG) default settings are meant mainly for photography panorama stitching. However, if VR Video stitching is your main use of APG, it is best to change its default settings to these typical for VR video rigs, so you will not need to do any adjustments when using APG from MistikaVR:
Open the APG, and choose “Edit”->”Settings” from the top bar. A panel will open.
In the “Images” tab, in the “EXIF” panel, activate the “Always force the following EXIF value”. Under it, in the “Focal” set value of 10.00mm. In the “Lens type” choose “Fisheye”. Only fisheye lens model can be imported from APG at this moment, however this is the case for almost all VR cameras.
In the Detection tab of the Settings window, toggle the “Detection” panel to manual and set the quality to “High”. Also, increase the number of control points to 150 or so.
In the Optimization tab, toggle the “Optimization scopes” to manual. For the lines marked as “Focal” and “Offset”, drag their sliders (on the right) to their left extreme (Meaning this that focal lengths and lenss offsets (centers) will be optimized separately for each lens). We recommend to leave the “Distortion” slider on the right, meaning the lens distortion will be considered the same for all lenses, as this is usually the correct assumption.
Optionally, you may switch the “Distortion” pulldown from Automatic to “Third Order”, specially for lens with strong lens distortion near the edges of the crop circle. Do not use stitches created in previous MistikaVR versions as they do not contain the K3 parameter necessary for the “third order” lens distortion.
The settings will be saved and used as defaults whenever you open APG, from MistikaVR or standalone. You can always reset the settings or partially override them whenever a specific case requires it.

Use of APG from MistikaVR

In MistikaVR, load the media. Do **NOT** apply any preset.

Use the “Stitch” -> “External Stitch” option.
The “Stitch Configuration” window will open. Choose the “Use Autopano Giga” option, choose “Do not show this window again” and “Continue”. If you need to change your tool choice later, use the “File”->”Options” option and toggle the “Show window to configure external Stitch applications”.

Autopano Giga will open, with a set of snapshots loaded.

Above the images, use the green icon (“Detect”). APG will create a stitch and place it on the right side of the APG layout. In this new panel, use the pulldown menu to save the stitch file with .pano file extension if you are happy with the quality of the stitch.
Close the APG. Back in MistikaVR, choose the “Stitch”->”Import Stitch” option, and choose the .pano file you just created. A stitch will be imported.
Adjust the crop circle **size**, unless the images were full frame (like a stock GoPro). Notice that GUI adjusts size jointly for all lenses, what is OK unless your rig uses a mix of different cameras or lenses (in such case, use the Input Camera “Crop Circle” numerical parameter to set each camera circle size separately) . Do **NOT** adjust the crop **circle positions**: in Mistika, crop circle position and lens center is the same, and moving the position would break the alignment.

Some parameters can be now set:
Increase the “Options”->”Feather” value to 10 to 50, typically.
Activate the “Options”->”Optical Flow” toggle.
If the rig is a radial type in 3D capable resolution, set the “Camera Spacing” to correct value (60 degrees for 6 camera rigs, 45 degrees for 8 camera rigs etc).
If the rig is based on stereoscopic pairs, go over the camera list and for each camera, in the “Input Cameras” tab, set its “Stereo Eye” to either Left or Right.

Optional APG adjustments for individual scenes

APG, as we configured it, should be prepared to directly calibrate, however you can optionally do some settings before hitting the “Detect” button:
Above the imported images, choose the “i” icon to open the Image Properties window. Switch to the “Circular Crop” of this window and adjust crop circle sizes and centers. Centering the crop circles is critical in our case, as Mistika does not separate crop circle center form lens center, and the APG optimizer will recalculate the lens centers anyway. As well, crop circle sizes can be adjusted much later, in MistikaVR, while watching the MistikaVR stitch results.
Also, the “focal length” in the “Images” tab may require some tweaking: The optimizer uses it as a starting value, and if it is too off, the calibration will fail. If you get an obviously failed, scrambled stitch image, you can hint the optimizer with better focal length value:
Set 8 mm if you see the full image crop circle
Set 16 mm if you do not see any crop circle at all (like stock GoPro)
Set 10 - 12mm if you see partially cropped circle.
Also optionally, after the detection, and if you are skilled with APG, you can select “Edit” to open the full APG interface and fine tune the stitch. Add or remove control points if necessary using the CP editor and optimise, tweak the optimiser parameters etc.

Thanks for the help with creating this document to APG expert user, Pablo Ballester.