


Surface Plane Advanced

Purpose

The Plane Advanced tool provides measurements that report a best-fit plane's key features, e.g., normal and flatness.

Compared to the Surface Plane tool ([Surface Plane Tool User Manual](#)), this advanced version is more robust and is not overly dependent on the location of ROI due to a different algorithm, as shown in the above images.

Inputs

Inputs	
Surface Input	Replay/Surfac... 

Name	Description
Surface Input	The surface data (point cloud or uniform) that the tool will apply measurements to.

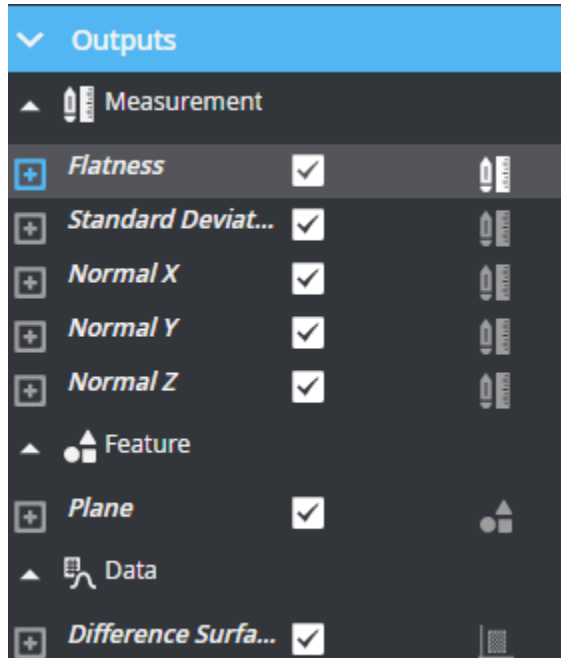
Parameters

Parameters		Detection Mode	Eliminating outliers
Use Region	<input type="checkbox"/>	Outlier Elimination	Plane with Largest Area
Detection Mode	Eliminating outliers	External ID	Plane at Top
Outlier Elimination	0.100 %		Plane at Bottom
External ID	SurfacePlaneAdvanced-0	Outputs	Eliminating outliers
		Measurement	Using all points

Name	Description
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Use Region	When enabled, show a Region parameter.
Region	The region to which the tool's measurements will apply.
Detection Mode	<p>The plane detection mode. One of the following:</p> <p>Largest Area</p> <p>Plane at Top</p> <p>Plane at Bottom</p> <p>Use these options when more than one plane fit is possible in the region.</p> <p>Eliminating outliers</p> <p>Uses all data points of the scan data in the region, with some points with a maximum distance to the best-fit plane being considered as outliers, and excluded from the calculation.</p> <p>Using all points</p> <p>Uses all data points of the scan data in the region.</p>
Outlier Elimination	<p>This parameter is only related to the measurement output Flatness which is very sensitive to outliers.</p> <p>In detail, after we get the best-fit plane, the parameter will provide a way for the users to remove some points with a maximum distance to the best-fit plane being involved in the Flatness calculation</p>

Outputs



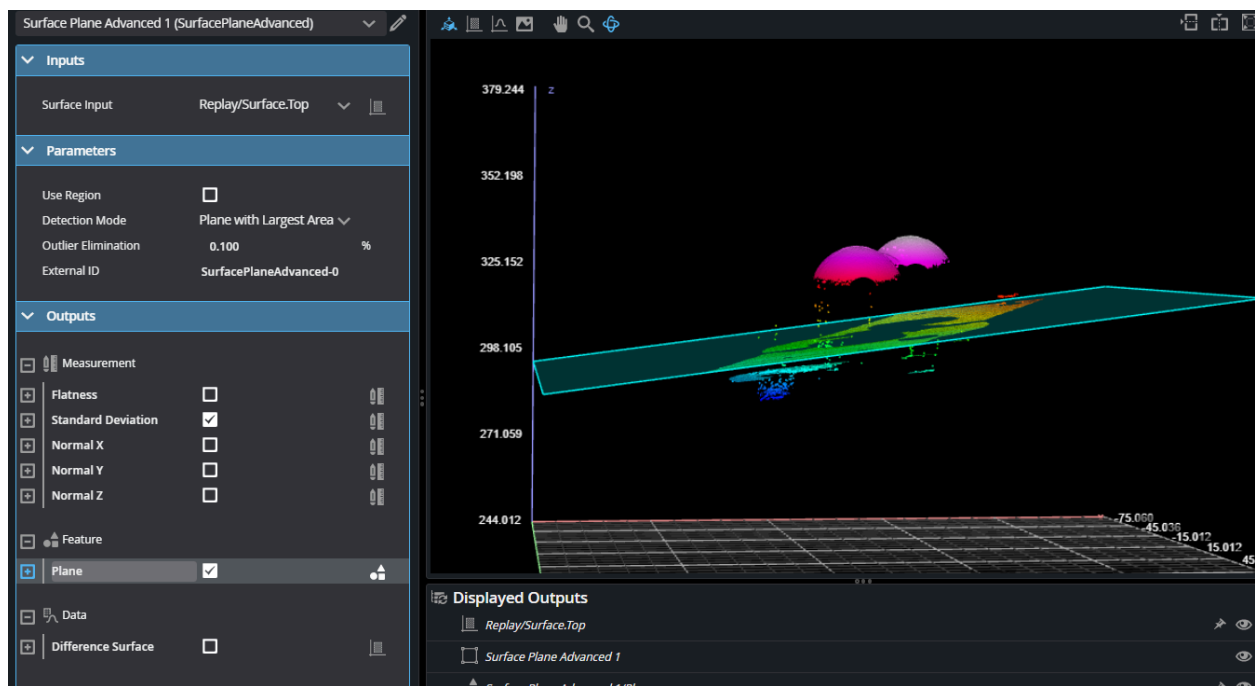
Type	Name	Description
Measurement	Flatness	Flatness of the valid points to the best-fit plane
Measurement	Standard Deviation	The standard deviation of the data points from the fitted plane.
Measurement	Normal X/Y/Z	Normal vector of the best-fit plane
Feature Plane	Plane	The best-fit plane
Uniform Surface	Difference Surface	Shows the fit error at each point of the plane.

Major Revisions (GDK 6.1.37.9)

- The name of this tool in Classic is “Surface Plane Fit”, in GoPXL, we decided to rename it as “Surface Plane Advanced”. This tool belongs to the Beta category.

- Removed the measurement “Processing Time” from GoPXL
- Removed the checkbox “Output Difference Surface” from GoPXL
- All the processed results are identical between the two versions.
- Speed performance is comparable based on [this test case](#) without adding any reason and using the tool default parameters.
 - GoPXL ~37.937ms/frame
 - Classic ~35.825ms/frame

Application Examples



Algorithm Details