Description:

This XTension will find the surface contact area between 2 surfaces. The primary surface is the base, and secondary is one covering the primary.

The result of the XTension will generate a one voxel thick unsmoothed surface object above the primary surface representing where the 2 surfaces physically overlap.

Two new statistics will be generated. 1) The first will be a total surface area of each new surface object. The measurement will be estimated by taking the number of voxels and multiplying by the area of a single (XY pixel). 2) The second statistic will be in the "overall" tab, reporting the percentage of NEW summed surface contact area relative to the total surface area of the primary surfaces.

NOTES:

This XTension requires that the volume collected have isotropic voxel spacing. This means that the X, Y and Z voxel sizes need to be equal or within a 5% difference of each other. If this criteria is not met, the XTension will not run. However, it will automatically calculate the new Z-step size to fit that criteria and how to make that adjustment in Imaris (it is easy!!!). The XTension will popup a dialog screen with instructions. Then the XTension will have to be rerun with the new volume settings.

If the Z-size is already smaller than the X Y voxel size, then no adjustments will be made.

The “RESAMPLE 3D” step to change the voxel parameters can be done at any time, even if you have already generated the surfaces. The resample function automatically adjusts existing surfaces to fit the new settings.

Basic steps involved:

1. Distance Transform outside primary surface object
2. Mask Secondary surface with Distance Transform channel
3. Make surface from the NEW masked channel setting the upper threshold to value 1.5 time greater than Xvoxel size.