

Image	ImageSize	ImageSize	ImageSize	ImageSize	ImageSize
Image	ImageSize	ImageSize	ImageSize	ImageSize	ImageSize
1	1024x768	1024x768	1024x768	1024x768	1024x768
2	1024x768	1024x768	1024x768	1024x768	1024x768
3	1024x768	1024x768	1024x768	1024x768	1024x768
4	1024x768	1024x768	1024x768	1024x768	1024x768
5	1024x768	1024x768	1024x768	1024x768	1024x768
6	1024x768	1024x768	1024x768	1024x768	1024x768
7	1024x768	1024x768	1024x768	1024x768	1024x768
8	1024x768	1024x768	1024x768	1024x768	1024x768
9	1024x768	1024x768	1024x768	1024x768	1024x768
10	1024x768	1024x768	1024x768	1024x768	1024x768
11	1024x768	1024x768	1024x768	1024x768	1024x768
12	1024x768	1024x768	1024x768	1024x768	1024x768
13	1024x768	1024x768	1024x768	1024x768	1024x768
14	1024x768	1024x768	1024x768	1024x768	1024x768
15	1024x768	1024x768	1024x768	1024x768	1024x768
16	1024x768	1024x768	1024x768	1024x768	1024x768
17	1024x768	1024x768	1024x768	1024x768	1024x768
18	1024x768	1024x768	1024x768	1024x768	1024x768
19	1024x768	1024x768	1024x768	1024x768	1024x768
20	1024x768	1024x768	1024x768	1024x768	1024x768

IPSDK 1.6

What's new...

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New features:

- New methods for automatical thresholding,
- Geometrical transformations,
- Pearson colocalization,
- Band-pass frequency filtering,
- PCA Image reduction,
- Many new shape measures:
 - Interpolation by ball, circle ellipsoid, Line, plan, ...
 - Number of Neighbors and area of contact,
 - Many new form criteria (roughness, roundness, ...)

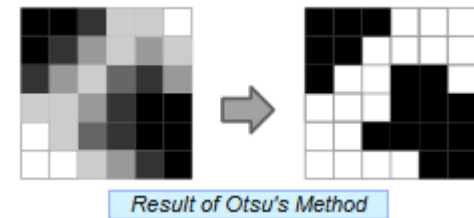


New methods for automatical thresholding

- IsoData threshold,
- Hysteresis threshold,
- 3D adaptative threshold.

These methods complete:

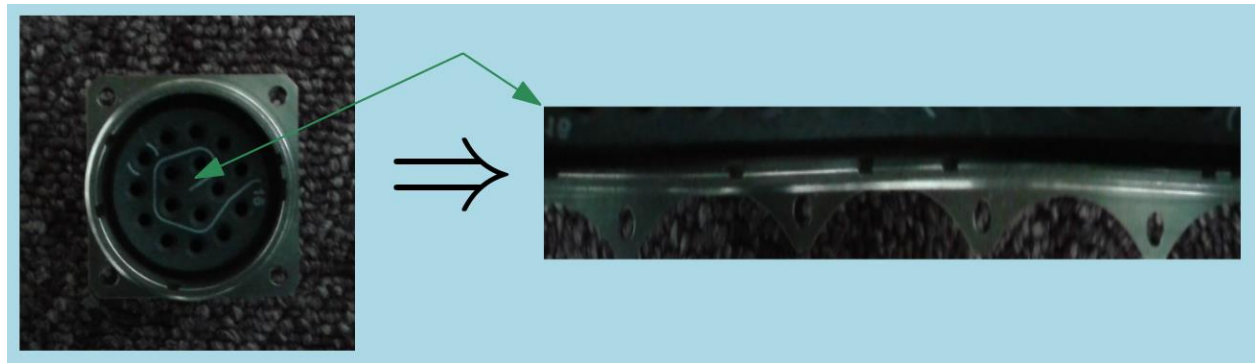
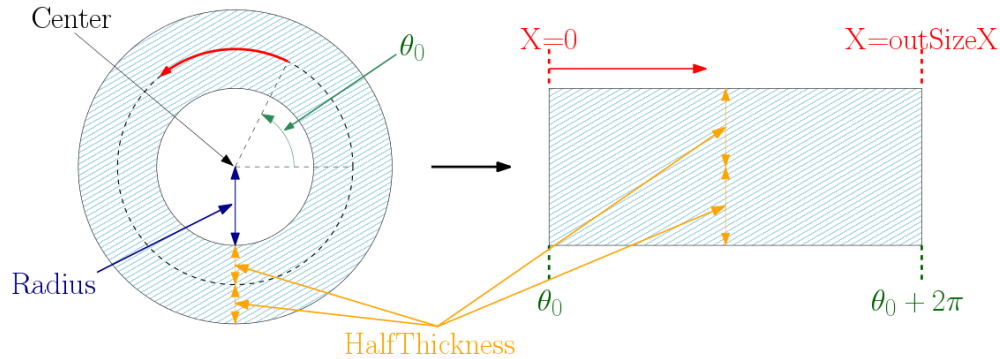
- Otsu threshold,
- Kapur threshold,
- Kittler threshold.



previously implemented in IPSDK

Geometrical transformations: **Ring unrolling**,

This algorithm allows to unroll surface of a ring into an image to a rectangular image area



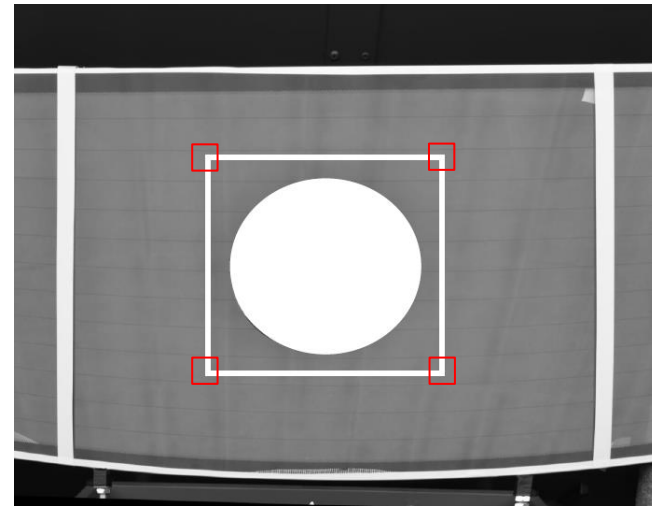
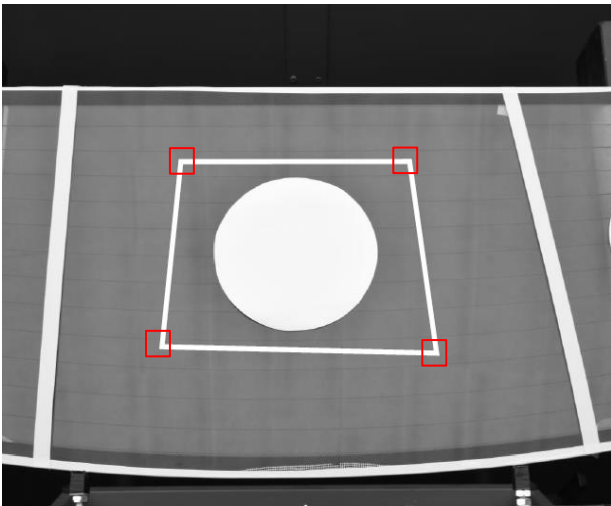
```
outImg2d1 = gtrans.unrollRingImg(inImg, center1, radius1, ringHalfThickness1, outSizeX1);
```

Geometrical transformations: Warping 2D & 3D

This algorithm allows to apply a motion transformation on an input image.

Available transformations:

Translation, rotation, rigid, scale, similarity, anisotropic scale, affine, homography



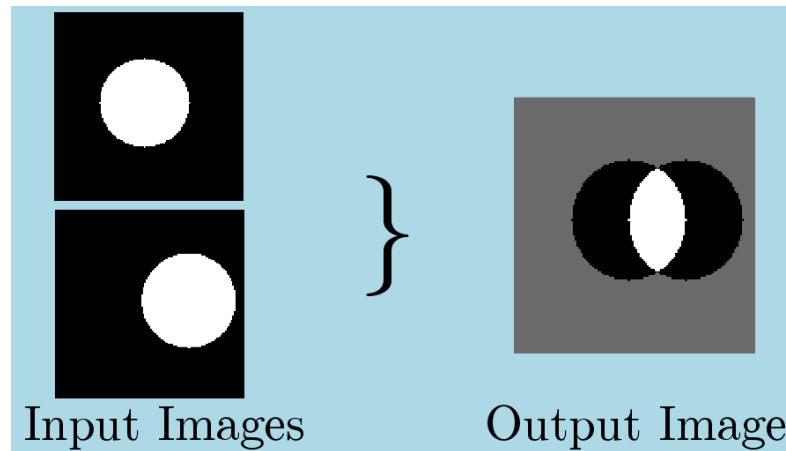
Sample of 2D homography transform

```
transform1 = createWarpMotionTransform2d(eGeometricTransform2dType.eGT2DT_Homography, ...
outImg1 = gtrans.warp2dlmg(inlmg, transform1)
```

Pearson colocalization

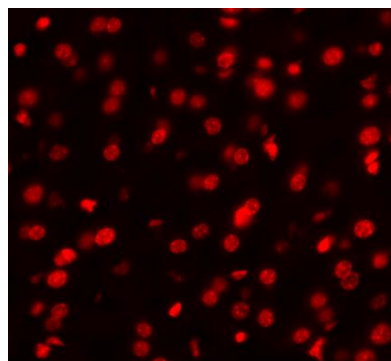
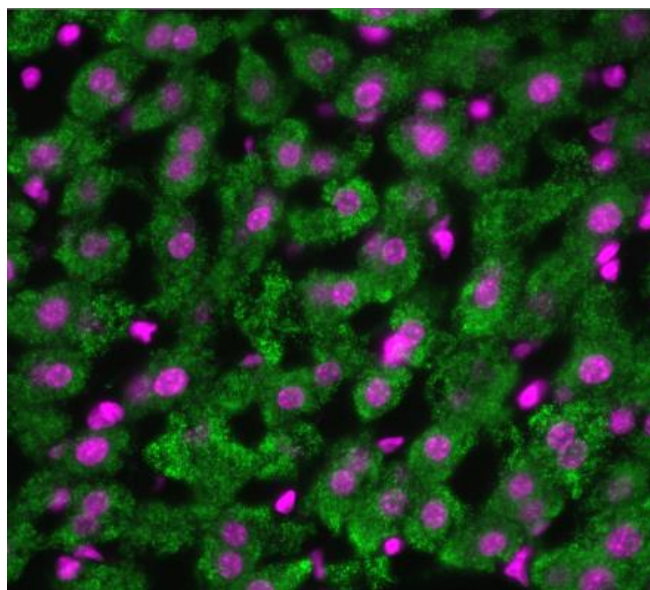
This algorithm allows to build the Pearson's colocalization map computing the Pearson correlation coefficient on each pixel.

It's a linear correlation measure between two input images.

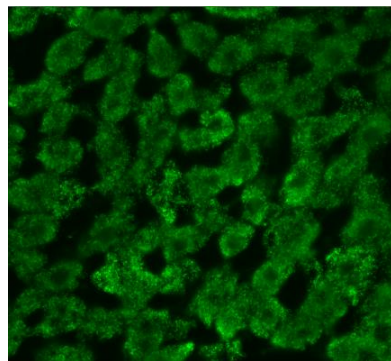


```
outAutoImg = filter.pearsonColocalization2dImg(inImg1, inImg2)
```

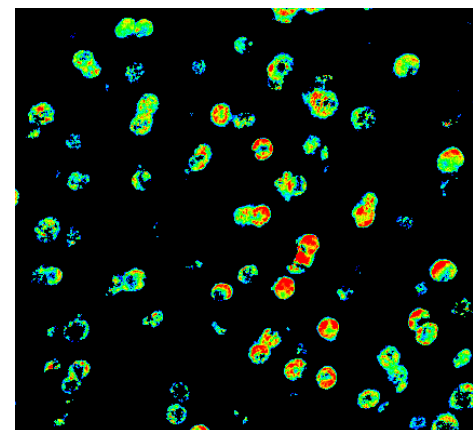
Pearson colocalization exemple



DAPI marker



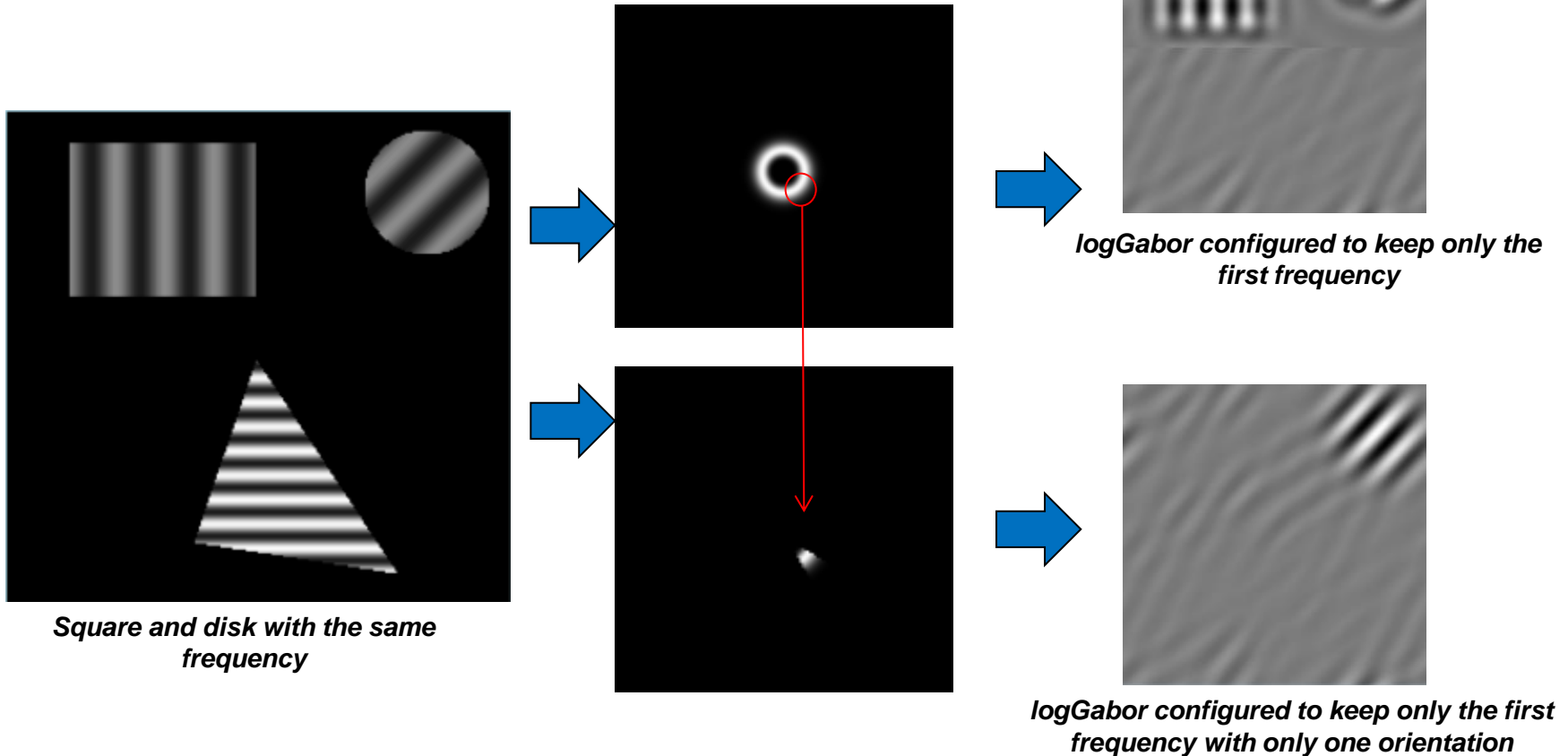
FITC marker



*Colocalization map
(with a rainbow colormap)*

Band-pass frequency filtering

- Gaussian and LogGabor band-pass filter,

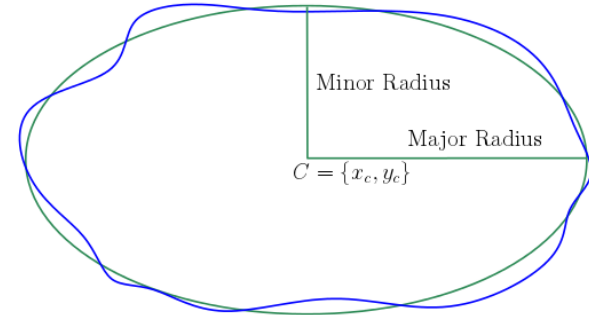


```
GaborImg = filter.frequencyFiltering2dImg(inImg, eFrequencyBandPassFilterType.eFBPFT_LogGabor, f0, sigma, theta, thetaRange)
```


New shape measures

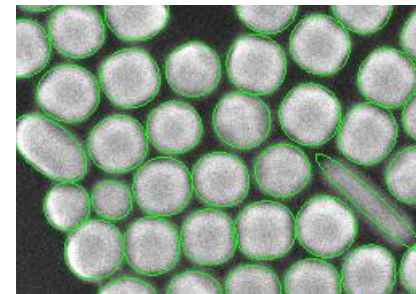
Least square 2d interpolation by

- a circle ,
- an ellipse,
- a line,
- ...



Least square 3d interpolation by

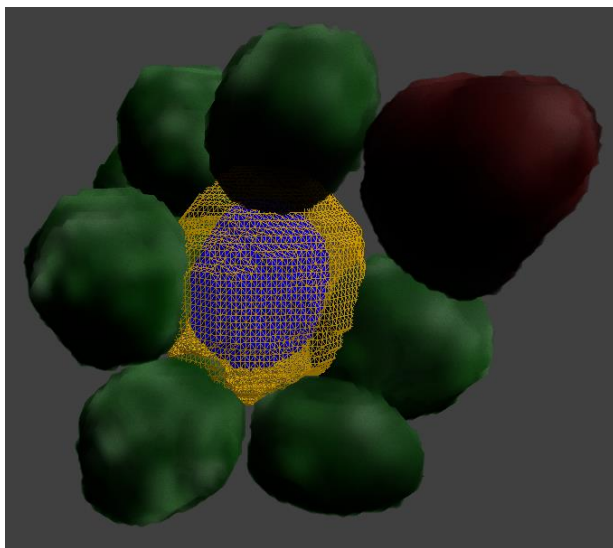
- a sphere,
- an ellipsoid,
- a plan,
- ...



These measures are computed for each shape.

New shape measures - Neighborhood analyse

- Number of Neighbors at a given distance (2D and 3D)
- Length of contact between shapes(2D)
- Surface of contact between shapes (3D)
- Distance to the nearest neighbor (2D and 3D)
- Nearest neighbors at a given distance of each shape (2D and 3D)



Surface of contact illustration

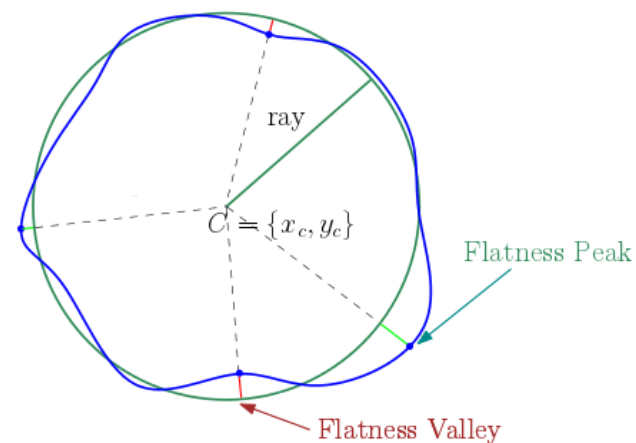
(green stands for shapes in contact with blue one, red for not in contact and yellow wired object illustrate surface of iso-distance to blue shape)

New shape measures - form criteria

- Angularity,
- Circularity,
- Roughness,
- Sphericity,
- Flatness (FlatnessPeak, FlatnessTotal, FlatnessValley)
- Roundness (RoundnessPeak, RoundnessTotal, RoundnessValley)



These new measures can be used to make a classification for such objects based on their forms.





IPSDK 1.6 is available.

Feel free to request a trial version !

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