stackypy Documentation

Release 0.1

CSRG/LIRAE

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CHAPTER 1

Astronomical Stacking Functions

stackypy.**detect_object**(*img*, *blur_size=2*)

Extracts information of the object detected at the center of the image.

Objects are detected applying a threshold, the one at the center is picked, approximating it as a (possibily rotated) ellipse.

Args:

img [numpy.ndarray] Astronomical data cube.

blur_size: int Size of the gaussian filter applied to the image to detect the objects.

Returns:

properties [tuple or None] Tuple with properties of the object found at the center of the image (*centroid_x*,*centroid_y*,*angle*,*major_ratio*,*minor_ratio*). None when no object was found at the center.

detection_mask: Image labeled with the detected objects, may be used for debug.

stackypy.**stack_to_template**(*images*, *interp_order=1*, *blur_size=2*)

Detects the central objects on a series of images, then scales and rotates these images so that all the central objects detected overlap on the same position as the one in images[0]. Images are then averaged together to create a final one.

Objects are detected with the detect_object function.

Args:

images [list of numpy.ndarray's] List of astronomical data cubes

interp_order [int] Order of interpolation used when rotating and scaling the images.

blur_size: int Magnitude of the gaussian blur passed to the detect_object function.

Returns:

properties [tuple or None] Tuple with properties of the object found at the center of the image (*centroid_x*,*centroid_y*,*angle*,*major_ratio*,*minor_ratio*). None when no object was found at the center.

detection_mask: numpy.ndarray Image labeled with the detected objects, may be used for debug.

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