

**NAME**

imageblur - blur photons in the XY plane using an image

**SYNOPSIS**

imageblur [*option=value*]

**DESCRIPTION**

**imageblur** applies a blur in the X-Y plane to **bpipe** formatted rays.

It uses an input **FITS** formatted image to generate the blur offsets. The image need not be normalized.

The offsets are calculated by:

- Choosing a pixel in the image based upon its value relative to those of the other pixels.
- Adding a uniform blur to the pixel indices to randomly sample the pixel.
- Subtracting the `x0` and `y0` parameter values from the pixel indices.
- Multiplying the results by the `scale` parameter.

**OPTIONS**

**imageblur** uses an IRAF compatible parameter interface. It recognizes the following parameters:

*input string*

Input photon stream in bpipe format. The string 'stdin' causes scatter to read from standard input.

*output string*

Output photon stream in bpipe format. The string 'stdout' causes scatter to write to standard output.

*pdf string*

The filename of the image.

*pmin float*

*pmax float*

*clip\_pdf boolean*

Pixels with probability values less than or equal to `pmin` and greater than `pmax` are excluded from consideration.

If `clip_pdf` is `true`, the absolute probability of each pixel is used. If `clip_pdf` is `false`, the probabilities are sorted and integrated, and the pixels whose contributions to the integrated probability lie between `[0, pmin]` and `(pmax, 1]` are excluded.

*x0 float*

*y0 float*

The position within the image (in pixels) corresponding to a blur offset of (0,0). If set to the string `center` the center of the image will be used.

*scale float*

The size of a pixel.

*seed1 integer*

The first seed for the random number generator. It must be in the range [1,214748339].

*seed2 integer*

The second seed for the random number generator. It must be in the range [1,214748339].

*block integer*

The random number block to start at. It must be in the range [1,1048575].

*help boolean*

Print brief usage information and exit.

*usage boolean*

Print usage information and exit.

*version boolean*

Print version and exit.

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