NAME

pdfblur - generate views for depth-of-field blurring

SYNOPSIS

pdfblur aperture nsamp viewfile

DESCRIPTION

Pdfblur takes the given *viewfile* and computes *nsamp* views based on an aperture diameter of *aperture* (in world coordinate units) and a focal distance equal to the length of the *−vd* view direction vector. When rendered and averaged together, these views will result in a picture with the specified depth of field. Either *pinterp(1)* or *rpict(1)* may be called to do the actual work. (The given *viewfile* must also be passed on the command line to the chosen renderer, since *pdfblur* provides supplemental view specifications only.)

For *pinterp,* feed the output of *pdfblur* to the standard input of *pinterp* and apply the *−B* option to blur views together. In most cases, a single picture with z-buffer is all that is required to get a satisfactory result, though the perfectionist may wish to apply three pictures arranged in a triangle about the aperature, or alternatively apply the *–ff* option together with the *–fr* option of *pinterp*. (The latter may actually work out to be faster, since rendering three views takes three times as long as a single view, and the *–fr* option will end up recomputing relatively few pixels by comparison.)

To use *pdfblur* with *rpict,* apply the *−S* option to indicate a rendering sequence, and set the *−o* option with a formatted file name to save multiple output pictures. When all the renderings are finished, combine them with the *pcomb(1)* program, using appropriate scalefactors to achieve an average. Note that using *rpict* is MUCH more expensive than using *pinterp,* and it is only recommended if the scene and application absolutely demand it (e.g. there is prominent refraction that must be modeled accurately).

For both *pinterp* and *rpict,* the computation time will be proportional to the number of views from *pdfblur.* We have found a *nsamp* setting somewhere between 5 and 10 to be adequate for most images. Relatively larger values are appropriate for larger aperatures.

The *−pd* option of *rpict* may be used instead or in combination with or instead of *pdfblur* to blur depth-of-field. If used in combination, it is best to set the *−pd* option to the overall *aperture* divided by *nsamp* to minimize ghosting in the output.

To simulate a particular camera's aperture, divide the focal length of the lens by the f-number, then convert to the corresponding world coordinate units. For example, if you wish to simulate a 50mm lens at f/2.0 in a scene modeled in meters, then you divide 50mm by 2.0 to get 25mm, which corresponds to an effective aperture of 0.025 meters.

EXAMPLES

To use *pinterp* to simulate an aperture of 0.5 inches on a lens focused at a distance of 57 inches:

```
rpict −vf myview −x 640 −y 480 −z orig.zbf scene.oct > orig.hdr
pdfblur 0.5 57 8 orig.hdr | pinterp −B −vf orig.hdr −x 640 −y 480 orig.hdr orig.zbf > blurry.hdr
```

To use *rpict* exclusively to do the same:

```
pdfblur .5 57 5 myview | rpict −S 1 −vf myview −x 640 −y 480 −o view%d.hdr scene.oct
pcomb −s .2 view1.hdr −s .2 view2.hdr −s .2 view3.hdr −s .2 view4.hdr −s .2 view5.hdr > blurry.hdr
```

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BUGS

This program really only works with perspective views.

SEE ALSO

pcomb(1), pinterp(1), pmblur(1), pmblur2(1), pmdblur(1), rcalc(1), rpict(1), vwright(1)