NAME

deva-visibility − estimate locations of potential low-vision hazards

SYNOPSIS

deva-visibility *preset-option* {*input.hdr* | −} *coordinates*
xyz.txt dist.txt nor.txt simulated-view.hdr hazards.png

or

deva-visibility [*options*] *acuity contrast* {*input.hdr* | −} *coordinates*
xyz.txt dist.txt nor.txt simulated-view.hdr hazards.png

DESCRIPTION

Extends functionality of **deva-filter** to provide estimates of likely low-vision hazards, defined as geometric structures that may be a mobility hazard but are not co-located with detectable visual contrast. Two output images are created. One is the same Radiance HDR format image that would be created by **deva-filter**, given comparable arguments. The other is a color PNG image, with estimated visibility hazards shown in red and other geometric features estimated to be less of a potential visibility hazard shown in dark gray.

OPTIONS

All of the **deva-filter** options, plus:

−−luminanceboundaries=<*filename*>*.png*
Write a grayscale PNG image file indicating the location of detected luminance boundaries.

−−geometryboundaries=<*filename*>*.png*
Write a grayscale PNG image file indicating the location of detected geometry boundaries.

−−red−gray
Larger distance (usually associated with estimated visibility hazards) shown in red and other geometric standard boundary elements that are closer (usually associated with elements estimated to be less of a potential visibility hazard) shown in dark gray. Default.

−−red−green
Larger distance (usually associated with estimated visibility hazards) shown in red and other geometric standard boundary elements that are closer (usually associated with elements estimated to be less of a potential visibility hazard) shown in green.

−−Gaussian=<*sigma*>
Visualization based on distance weighted by an unnormalized Gaussian function with standard deviation <*sigma*>. Default visualization weighting is **−−Gaussian=0.75**.

−−reciprocal=<*scale*>
Visualization based on reciprocal of distance, with distance scaled by <*scale*>.

−−linear=<*max*>
Visualization linearly scaled to a maximum distance of <*max*>.

−−quantscore
Annotate the output image with the average hazard value over all of the boundary elements in the standard. Only available if compiled with the Cairo library option.

ARGUMENTS

input.hdr
Original Radiance image of area in design model to be evaluated for low-vision visibility hazards, as for **deva-filter**.

coordinates
A two line text file. The first line specifies the units for the *xyz.txt* and *dist.txt* files. The second line is the same as the VIEW record in *input.hdr*. See **make-coordinates-file** for information on how to create this file.

xyz.txt A Radiance ASCII format file specifying the xyz model coordinates for each surface point in the model corresponding to the line of sight associated with each pixel in *input.hdr*.

dist.txt A Radiance ASCII format file specifying the distance from the viewpoint to each surface point in the model corresponding to the line of sight associated with each pixel in *input.hdr*.

nor.txt A Radiance ASCII format file specifying the surface normal in model coordinates for each surface point in the model corresponding to the line of sight associated with each pixel in *input.hdr*. Note that the numeric values are unitless since they specify a unit normal.

simulated-view.hdr
A Radiance image simulating the reduced visibility associated with loss of visual acuity and contrast sensitivity.

hazards.png
An output PNG image indicating likely potential visibility hazards.

AUTHOR

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