# Contrast stretching in Python/ OpenCV

Ask Question

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Searching Google for **Histogram Equalization Python** or **Contrast Stretching Python** I am directed to the same links from python documentation in **OpenCv** which are actually both related to equalization and not stretching (IMO).

1. http://docs.opencv.org/2.4/doc/tutorials/imgproc/histograms/histogram_equalization/histogram_equalization.html
2. http://docs.opencv.org/3.2.0/d5/daf/tutorial_py_histogram_equalization.html

Read the documentation, it seems to be a confusion with the wording, as it describes equalization as a stretching operation:

> What Histogram Equalization does is to stretch out this range.

AND

> So you need to stretch this histogram to either ends (as given in below image, from wikipedia) and that is what Histogram Equalization does (in simple words)

I feel that is wrong because nowhere on Wikipedia it says that **histogram equalization** means stretching, and reading other sources they clearly distinguish the two operations.

1. http://homepages.inf.ed.ac.uk/rbf/HIPR2/histeq.htm
2. http://homepages.inf.ed.ac.uk/rbf/HIPR2/stretch.htm

**My questions**:

1. does the OpenCV documentation actually implements Histogram Equalization, while badly explaining it?
2. Is there any implementation for contrast stretching in Python? (OpenCV, etc?)

python opencv image-processing histogram

edited Feb 15 '17 at 18:44

Jeru Luke
**8,595** 9 29 46

asked Feb 15 '17 at 18:18

Roxanne
**399** 6 19

I think you mean **'Contrast stretching'** – Jeru Luke Feb 15 '17 at 18:32

1 Have a look at THIS PAGE for a small insight as to what these two terms mean... – Jeru Luke Feb 15 '17 at 18:34

@JeruLuke thank you indeed I meant contrast stretching! I will edit the question. – Roxanne Feb 15 '17 at 18:42

You can do it in Python wand or Python Skimage. For example

see scikit-image.org/docs/dev/api/… or see contrast_stretch at docs.wand-py.org/en/0.5.1/wand/image.html – fmw42 Mar 6 at 1:24

## 1 Answer

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OpenCV doesn't have any function for contrast stretching and google yields the same result because histogram equalization **does** stretch the histogram horizontally but its just the difference of the transformation function. *(Both methods increase the contrast of the images.Transformation function transfers the pixel intensity levels from the given range to required range.)*

Histogram equalization derives the transformation function(TF) automatically from probability density function (PDF) of the given image where as in contrast stretching you specify your own TF based on the applications' requirement.

One simple TF through which you can do contrast stretching is `min-max` contrast stretching -

> ((pixel – min) / (max – min))*255.

You do this for each pixel value. min and max being the minimum and maximum intensities.

answered Feb 15 '17 at 18:37

hashcode55
**3,180** 3 16 32