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# Computational Photography
Assignment 5

Submission deadline for the exercises: Thursday, 14. June 2018 before 11:59.

Instructions: Upload the source code to your solution (**no images please, just the plain code**) in the ILIAS system at:
ILIAS Computational Photography SoSe2018

5.1 HDR-Reconstruction ($5 + 10 + 35 + 20 = 70$ points)

In this exercise your task is to reconstruct High Dynamic Range Images by combining a set of LDR-images taken at different exposure times. For the reconstruction you shall implement the algorithm by Robertson et. al. given in their paper ``Dynamic Range Improvement through Multiple Exposures''. Your tasks are:
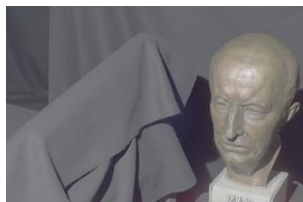
Reconstructed HDR image (tonemapped for displaying purposes).

a) Implement the weighting function `weight` (you should use the gaussian weighting function from Robertson et. al).

b) Implement the normalization of the response function `I`, '`normalize(I)`' (e.g. such that the value at the middle of the range is 1).

c) Reconstruct the HDR image by assuming a perfectly linear camera response curve (function `robertson_applyResponse()`).

d) Recover the real (non-linear) camera response curve for the given image set and visualize it (function `robertson_getResponse()`).

Hints:

- To search for a value withing a matrix you can use matlab function '`find`'.

Links:

- HDR explained at
http://www.cambridgeincolour.com/tutorials/high-dynamic-range.htm