



D2.4 Real-time tone mapping in a reference environment



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Author(s)	Praveen Cyriac, Marcelo Bertalmío (UPF)
EC Project Officer	Mr. Rapolas Lakavicius, Rapolas.LAKAVICIUS@ec.europa.eu
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1. Executive Summary

The contrast capabilities of camera sensors exceed those of regular displays. A non-linear transformation often referred to as tone-mapping (TM) is required to reduce the dynamic range of the source image content while preserving the visibility of details.

While all cameras provide the option to perform this operation, in professional cinema it is preferred to record the data in linear form and manually perform the contrast grading in postproduction.

Previously, we proposed a method that automatically performs this TM transformation taking into account the image content; it is based on visual perception models and is well suited to the statistics of natural scenes, having been optimized and validated through psychophysical tests that confirm that it outperforms other state of the art algorithms.

In this report we extend the method by introducing two modifications that further improve the appearance of the results: working in the IPT colorspace, and performing contrast-enhancement in a different manner in the luminance and the chrominance channels.