

# EQUALIZZAZIONE SEMI-AUTOMATICA DI IMMAGINI PER TEXTURING: IMPLEMENTAZIONE CON GRASS

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**PAROLE CHIAVE** : texture, draping, 3D modeling, image equalization, color balancing

## **Abstract:**

This paper presents a method for color equalization of a n-number of images using a semi-automatic regression-based method. The images will be equalized using “master” and “slave” images. The master does not necessarily have to be only one image, but can change in order to cover all the discrepancies in color characteristic. The idea behind this procedure is to match the points which are supposed to have the same chromatic characteristics in two or more images. This problem often arises when texturing 3D models which require multiple views to drape the model with digital images taken with different lighting conditions and camera settings.

The example which will show the validity of the method is taken from multiple images taken of the Cappella degli Scrovegni, a chapel frescoed by Giotto in Padova, Italy. After doing a 3D model from a laser scanning inside, digital images of the frescoed chapel walls were draped over it thus applying texture. The textured model presented odd color differences along the patch-line on homogeneous surfaces when two images were patched next to each other.

Our method is semi-automatic because it implies for the operator to add control points which the program identifies as having to be have equal chromatic characteristics. It then does different regression models of all slave images to the master images to balance them chromatically giving a heavier weight on points next to boundaries thus trying to blend any difference between pixels which ought to be of the same color, especially along the patch-lines.