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EE 368
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Title:

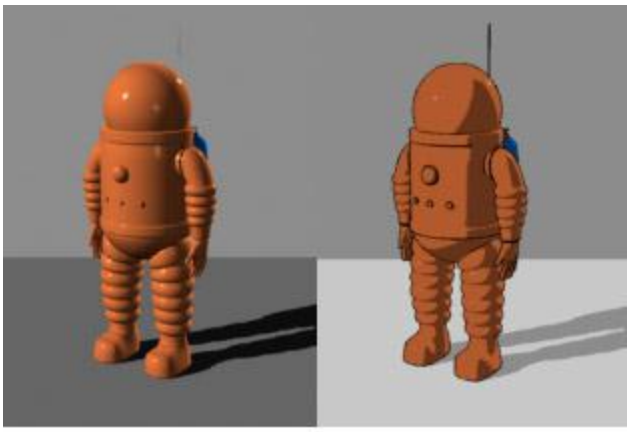
Toonify

Group:

Kevin Dade

Description:

An android app used to "cartoonify" pictures taken. Ideally the effect should come out similar to that of "cel-shading" in 3D graphics (see example below). The app will allow the user to capture a photo, and then choose the option to "cartoonify" the image. This process will reduce the color palette of the image to a limited set of saturated colors, homogenize areas through morphological processes, and add lines to the image. The user interface will be simple with only the option to take a photo, and then the further prompt to cartoonify the photo. If the result is satisfactory, the user will be able to save the photo on the device.



http://upload.wikimedia.org/wikipedia/commons/b/b7/Toon-shader.jpg

I intend to use a combination of the following techniques to achieve the effect described above (although not necessarily in this order):

1. Thresholding (for color quantization)
2. Pyramid Mean-Shift Filtering
3. Dilation/Erosion (outlines).
4. Stuff we haven't learned yet (?)

Android is the target platform, and the application will be designed and tested on a Nexus 7 tablet device. As such, I will *not* require one of the class DROID phones.

Sources:

A useful overview of Mean-Shift:
http://saravananthirumuruganathan.wordpress.com/2010/04/01/introduction-to-mean-shift-algorithm/
A detailed explanation of "cartoonizing" images. I would like to achieve a slightly more drastic effect than the one shown in these examples.
http://computer-vision-talks.com/2012/07/opencv-tutorial-part-6/#How_to_make_image_looks_like_a_cartoon
This book is helpful in every way…
Russ, John C,*The Image Processing Handbook, Sixth Edition,* CRC Press, Apr 28, 2011