German University in Cairo
Faculty of Media Engineering and Technology
Spring 2021

DMET 1002 – Advanced Media Lab

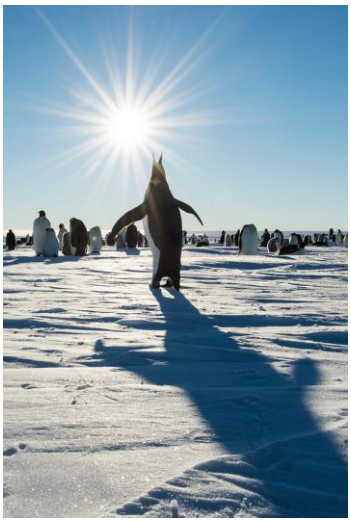
The Final Project

Scene Shadow Reduction in Images

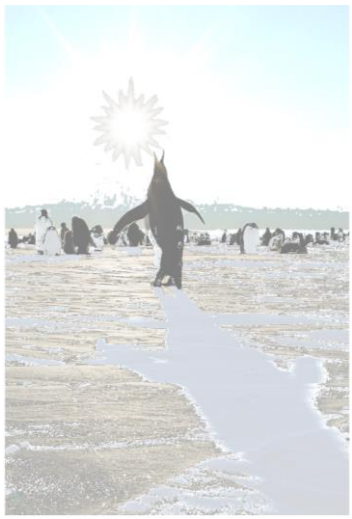
Project Description:

For most of the applications utilizing a camera, fluctuations in illumination result in inconsistent results.

In this project, you are asked to implement a shadow reduction algorithm that aims to reduce the shadow regions in images to produce more uniformly distributed illumination in the image.



Before shadow reduction



After shadow reduction

Here are some hints on what needs to be used to implement the project:

- For easier shadow detection and reduction, adjust the gamma of the image to make it brighter.
- To obtain the best result the processing needs to be applied on the YC_bC_r color space.
- A threshold will need to be set on the luminance to omit bright objects from the scene.

- To get a mask of the shadow area, a comparison has to be made between the blue, red and green components of the image as well as the luminance threshold (The blue component is higher in the shadow regions).
- The masked luminance channels will need to be combined with the original image to reduce the shadow based on some statistics on the shadow regions.

Submission Details:

The deadline for the submission is on the 20th of June for the group on Sunday and on the 22nd of June for the group on Tuesday.

Your code is to be submitted along the output shadow reduced image. Apply your code to the two provided images named 1.png and 2.png.

Your project should be sent as google drive link to this email:

mohamed.ihab-sabry@guc.edu.eg

Good Luck ☺