Computer Vision 2023
Workshop 1

Preliminary

Workshop sessions in Computer Vision are not assessed. Each session will have a few questions aimed at starting discussion between you and the tutor, but you are free to come along with your own questions or points! Participation in these sessions is for your own benefit.

The aim of this session is to make sure everyone is familiar with the basics of image filtering and making progress on their first assignment. There is no coding required, but if you have a specific question about some code you are writing it would help to bring your laptop along.

Question 1 — Point processes

In the "green screen" technique often used for visual effects (and Zoom meetings!), an actor works in front of a green backdrop which is later replaced by a rendered scene. What point process would you apply to separate the pixels on the background from the pixels on the actor? What problems might arise?

Figure 1: Cheesy actor in front of green screen.

Question 2 — Image filters

In the green screen example above, errors in individual pixels can lead to "speckle" type noise in the foreground and background regions. How could you remove this noise with a filter? Hint: have a look at the section on *morphology* filters in the textbook.

Practical work / Case Study

1. Here is a notebook in colab with code to extract the foreground from the green-screen : https://colab.research.google.com/drive/1ayqToig_LbXQcdxrUaQSMQ4cflJGiU_n?usp=sharing

Distributed via MyUni you will also find a textfile version of the notebook and the image file 12.jpg. The image file will need to be copied to your google drive into a folder Colab Notebooks. The second part of the code manipulates an image called test img.jpg. Upload an example image to the same folder and either change its name to test_img.jpg or change the filename in the code.

Make sure you can run this notebook, observe the output and learn to understand the code and the logical flow of the processing.

Assignment 1 check-in

How are you finding assignment 1 so far? Have you got a suitable environment set up using colab or jupyter? Any remaining time in the session can be used for *general* discussion of your progress so far, any stumbling blocks and so on.

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