Politechnika Śląska

Laboratorium
Przetwarzania Obrazów Cyfrowych

Ćwiczenie nr 3

Temat: Wyznaczanie liczby barw w obrazie (L03).

AiR gr. 5

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Spis treści

1 Cel ćwiczenia

1.1 I nie tylko

1.1.1 a może jednak

TEST

TEST

TEST

TEST

TEST

TEST

1.2 Kod

```
%
   ------------------------------------------------------------------
%                SAVE THE VALUE OF THE VARIABLE TO THE FILE
%
   ------------------------------------------------------------------
% SAVE the values for easy LaTeX input
fileID = fopen('./variables/zad_2_part_1/original_k1_' +
   string(number) + '.txt','w');
fprintf(fileID, '%.4f', k1);
fclose(fileID);

%
   ------------------------------------------------------------------
%                EXAMPLE OF THE LABEL FORMATTING WITH
   MULTIPLE LINES AND REDUCED FONT SIZE
%
   ------------------------------------------------------------------
figure()
    subplot(1, 5, 1)
    imshow(I1);
    xlabel(['k1 = ' + string(k1) + ', k2 = ' +  string(k2)
       + ', k3 = ' + string(k3) + ', k4 = ' + string(k4);
       'min = ' + string(omin) + ', max = ' +
       string(omax)], 'FontSize', 10, 'FontUnits',
       'points', 'Interpreter', 'none');

%
   ------------------------------------------------------------------
%                SAVE THE CURRENT FIGURE ON A SPECIFICALLY
   SIZED CANVAS
%                AND TURN OFF ITS VISIBILITY SO IT WILL NOT
   BE DISPLAYED WHEN THE CODE IS RUN
%
   ------------------------------------------------------------------
% save the entire subplot
set(gcf, 'PaperUnits', 'centimeters');
y_width = 15;
x_width = 35;
set(gcf, 'PaperPosition', [0 0 x_width y_width]);
set(gcf, 'visible', 'off');
saveas(gcf, "../img/zad_2_part_1_" + string(number), "png");

%
   ------------------------------------------------------------------
%                gcf EXPLANATION
%
   ------------------------------------------------------------------
% The code `set(gcf, 'PaperPosition', [0 0 x_width
   y_width]);` is used in MATLAB to set the dimensions of a
   figure when it's printed or saved as an image file such
   as PDF, PNG or JPG.
```

```
33
34 % Here's what each parameter means:
35
36 % - `gcf` stands for "get current figure" and refers to the
   currently active figure window.
37 % - `'PaperPosition'` is a property that specifies the size
   and location of the printable area on the page.
38 % - `[0 0 x_width y_width]` is a vector that defines the
   position and size of the printable area in points (1
   point equals 1/72 inch). The first two elements of the
   vector are the coordinates of the lower-left corner of
   the page, which are set to (0, 0) for this code to
   ensure that the figure is aligned with the margins of
   the page. The last two elements of the vector define the
   width and height of the printable area in points, which
   are determined by the variables `x_width` and `y_width`.
39
40 % Therefore, this code sets the position and size of the
   printable area of the currently active figure window to
   be consistent with the values of `x_width` and
   `y_width`, which can then be used to print or save the
   figure with the desired dimensions.
41
42
43 %
   ------------------------------------------------------------
44 %               SAVE THE CURRENT FIGURE AND DO NOT DISPLAY
   IT
45 %
   ------------------------------------------------------------
46 % save individual images
47 figure()
48     imshow(I)
49     set(gcf, 'visible', 'off');
50     saveas(gcf, "../img/zad_2_part_1/0x_" + string(number),
          "png");
51
52 %
   ------------------------------------------------------------
53 %               SAVE THE CURRENT FIGURE WITH THE NAME BASED
   ON THE FILE PATH NAME
54 %
   ------------------------------------------------------------
55 I1 = "../img/CFA_sRGB/IMG_015_srgb_CFA.png";
56 plotName = strsplit(I1, "/");
57 plotName = plotName(end);
58 saveas(gcf, "../img/POROWNANIE_" + plotName{1});
59
60 %
   ------------------------------------------------------------
61 %               SAVE THE MATRIX TO A FILE
62 %
   ------------------------------------------------------------
63 kernel = [-1 -1 -1; -1 8 -1; -1 -1 -1];
64 writematrix(kernel,'./variables/kernel/kernel_size.txt','Delimiter'
```