UCF

RET 2012

TAKE HOME EXERCISES

Instructions:

This handout contains code for some of the demonstrations seen during the presentation and an additional exercise. Please try to replicate the results before next week's session. Feel free to ask any questions at the email address provided.

Changing the brightness of an image:

In this exercise we change the brightness of a grey scale image in certain patterns.

i – wave pattern

Code snippet:

```
>> I = imread('test.bmp');

>> size(I)
```

You will see the dimensions of the image 'I' printed out on the screen. If I is 3 dimensional, convert it to greyscale:

```
>> I = rgb2gray(I);
```

Otherwise, carry on to the next step:

```
>> for i = 1:size(I,1)

>>   I(i,:) = I(I,:) + 50*sin(2*pi*i/50);

>> end
```

ii – bands

Code snippet:

```
>> I = imread('test.bmp');
```

```
>> size(I)
```

You will see the dimensions of the image I printed out on the screen. If I is 3 dimensional:

```
>> I = rgb2gray(I);
```

Otherwise, carry on to the next step:

```
>> for i = 1:size(I,1)
>>   if mod(I,100) < 50
          I(i,:) = I(I,:) + 50;
>>   end
>> end
```

Removing all the grass from a soccer match:

Given a color image of a soccer match, remove or identify the grass, so that the positions of the players within the boundaries of the pitch can be obtained.

Our simple approach is based on the idea: The grass has higher 'green' value than 'blue' or 'red'.

Before you run this, make sure that the file 'soccer.bmp' is present in the working directory of your Matlab.

Code snippet:

```
>> I = imread('soccer.bmp');
```

```
>> imshow(I);

>> for i = 1:size(I,1)
>>   for j = 1:size(I,2)
>>        if I(i,j,2) > I(i,j,1) && I(i,j,2) > I(i,i,3)
>>             I(i,j,:) = [0 0 0];
>>        end
>>   end
>> end
>> figure; imshow(I)
```

Exercise:

Take the football.bmp image, convert it to greyscale, find its edges, find out what it looks like if thresholded (The instructions for all these operations are present in the slides accompanying this handout)