ECE4580 FA23 - Prof. Jones – HW 3

Due Tuesday, Oct 24, 2023 – 11:59 PM via Canvas

PART I

In the Files > Images section of the Canvas page, you will see an image called "smeared.png". It's pictured below. You are to restore the image as much as possible, so that you can read the tail number of the airplane (by eye, not in your program).

1. Load the color image from your Google Drive and convert to grayscale by averaging the color planes.
2. Implement a degradation restoration using a Wiener filter (you may use the Wiener functions of skimage). You will need to experiment to determine the proper degradation kernel. Note: the motion blurring is only horizontal in this image.
3. Show the best result you obtained in restoring the image; paste the best output image into your report file and include in your submission as hw3result1.png.
4. What is the tail number of the aircraft? Include the answer in your report.

PART II

In the Files > Images section of the Canvas page, you will see an image called "bananaplant.png". It's pictured below. Produce a result in which the bananas are blue, but the rest of the image is unchanged. Paste your recolored mage into your report file and include in your submission as hw3result2.png.

Hints:

1. Convert to HSV and process there.
2. I don't want the bananas all the same color of blue; consider shifting the colors from the yellow.
3. You should not have to use anything that we have not discussed in class.

SUBMISSION:

For your submission, paste all of your code and the results of running your program into a single Word (or pdf) file. Paste code as plain text (no dark-mode or screenshots). Also submit your final Python notebook (as an ipynb file). Submit four separate files: your Word or pdf submission, your CoLab notebook and your two image results files. Submit your files using Canvas. Do NOT put your files into a zip file for submission; submit them as separate files.