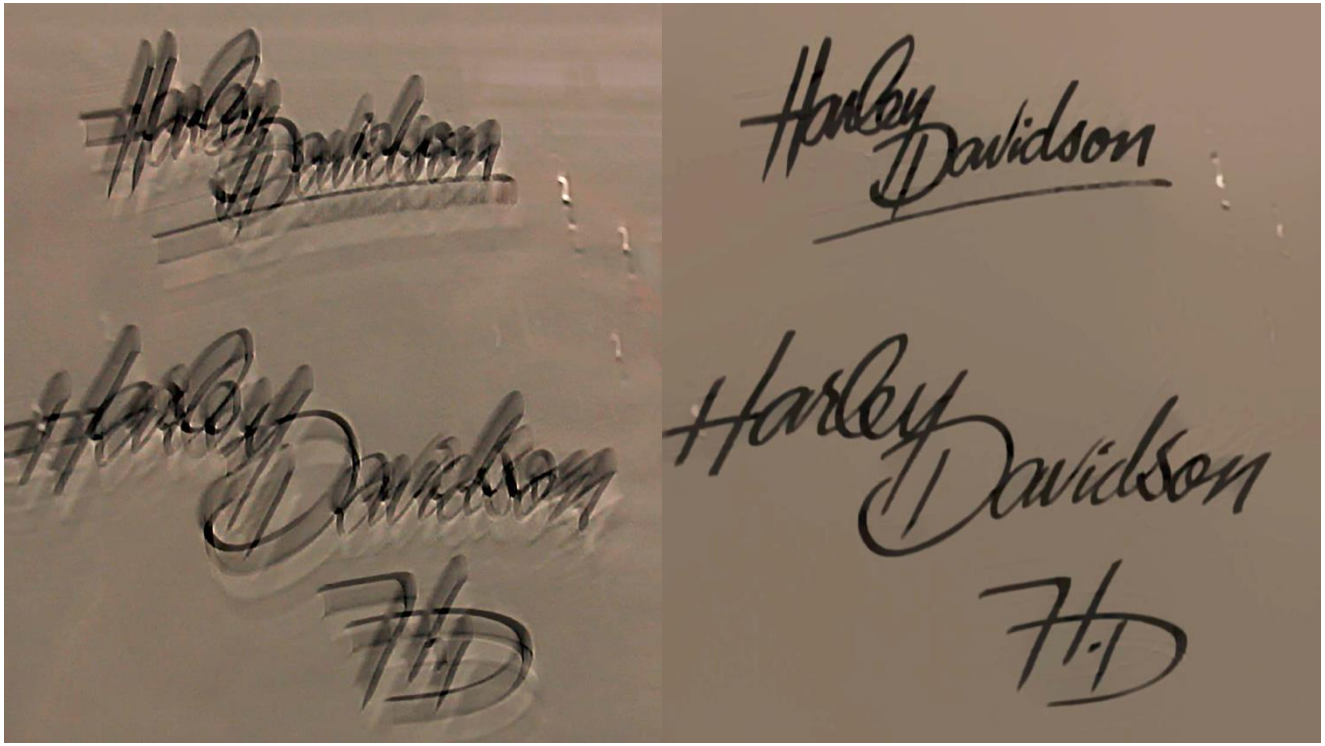
DIP projects

Project 1: Add rain effect into photo

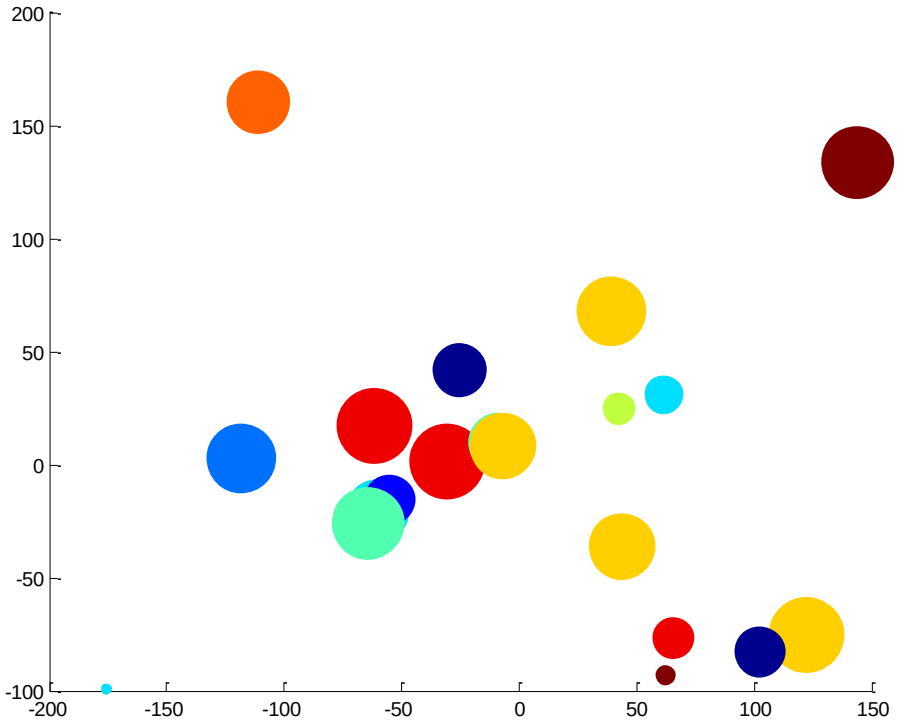
As shown in the comparison picture above, a rainy scene is not only about rain drops. When the ground is wet, it turns smooth. And if there is light, the whole scene turns brighter.
Please generate a rainy scene using the provided photo.

Project 2: Image de-blurring



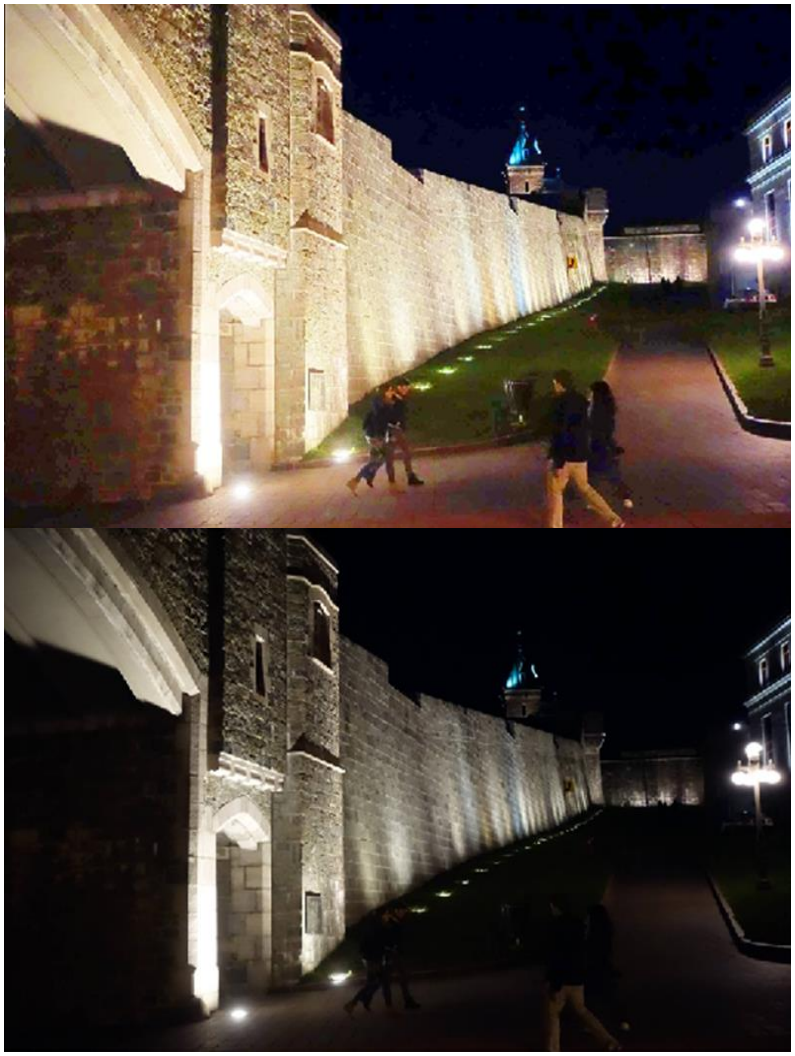
Motion of camera brought severe blurry effect into the photo, as shown in the left figure. Please design algorithm to compensating the motion effect and generate clear photo as the right figure.

Project 3: Data recovery



Please detect the center coordinate of each color circle (including the ones hidden behind).

Project 4: Photo highlight



Images of outdoor scenes are usually degraded by the environment. The irradiance received by the camera from the scene point is attenuated along the line of sight. The degraded images lose the contrast and color fidelity.

Please try to recover the high-lighted image (top figure) from the poorly illuminated image (bottom figure).

Project 5: feature detection

Count the number of bears in the picture…

Project 6: Color transfer

Play with the color channels, try to keep only red peppers and transfer other place to grey level. Figure on the right is just for example, try to propose multiple methods and figure out the best result (please also propose evaluation criterion to present how the “best” result is chosen).

Project 7: Image segmentation

- Automatically segment the two deep gray matter nuclei in the provided MRI brain image as demonstrated below. The blue edged regions are called substantial nigra and the yellow edged regions are called red nuclei.
- Use the following commends for MRI image display in matlab: imagesc(rot90(slice,3)); colormap(gray).