ECCE 633 – Machine Vision and Image Understanding

Assignment 1

Announced: **20 September 2021**

Submission deadline: **29 September 2021**

Acceptable forms of submission:

Online (using Blackboard) – single ZIP, DOC(X) or PDF file

Develop a system that combines two images of the same size A, B into a hybrid image C obtained as a sum of a low-pass filtered A image and high-pas filtered B image

$$\text{Output} = A * f_{LP} + B * f_{HP}.$$

For better results, image content should be aligned. Please, provide at least **two** examples of hybrid images assembled by your program. You should experiment with several combinations of filters and parameters to get optimal results.

1. Use Gaussian filtering for both the low pass and high pass filtering operations. For a reference, please refer to the following paper http://cvcl.mit.edu/publications/OlivaTorralb_Hybrid_Siggraph06.pdf . You should experiment with different parameters choices and settings. Report a summary of your findings and highlight your best results.
2. Use a combination of Gaussian and Laplacian filtering in the design of these filters. Compare your results with the previous experiment and explain the differences.