CIE 552 mini-project 1

Team#2

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Algorithm

I. Image filtering:

- Firstly, the filter gets padded so it has the same size as the image.
- FFT is taken for the filter after getting padded.
- FFT is taken for the image.
- The filter is applied to the image by multiplying the result of step 2 and step 3 then taking the I-FFT for the result.
- Incase of colored images, FFT is done separately for each of the red, blue, and green frequencies then it gets multiplied to the result of step 2 then I-FFT is taken for each of them then every color is put to its assigned channel (channel 0 for Blue, channel 1 for Green, and channel 2 for Red).

II. Hybrid images:

- The filter implemented in part 1 is applied to the 1st image to obtain its low frequencies.
- The filter implemented in part 1 is applied to the 2nd image to obtain its low frequencies.

- The high frequencies of the 2nd image are obtained by subtracting the low frequencies from the original image.
- Then the result of the previous step is added to the result of the 1st step to obtain the hybrid image.

Extra credit

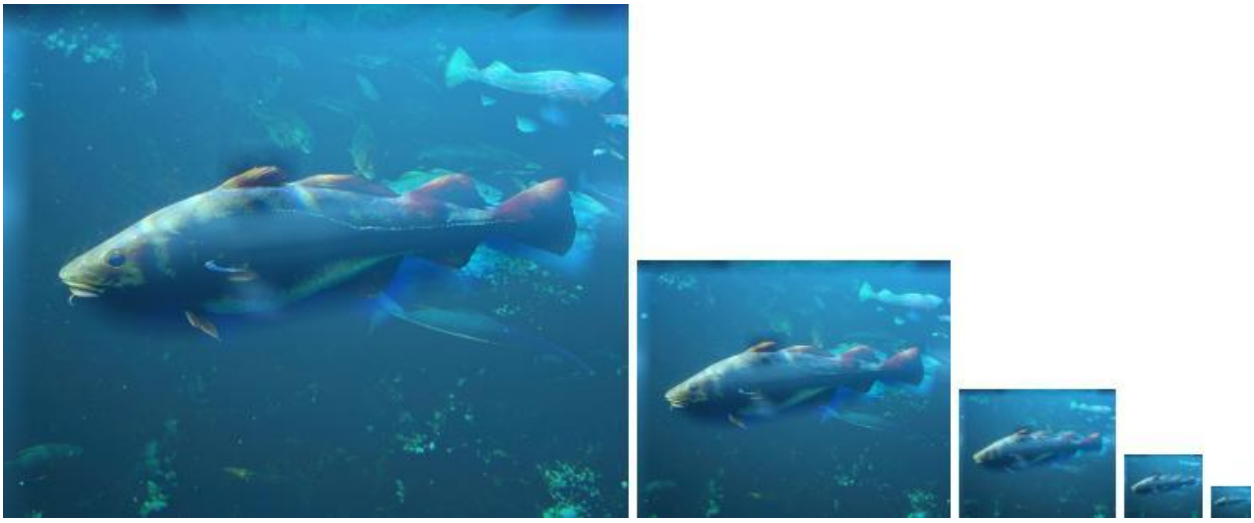
- FFT-based convolution was used.

Results

- Hybrid image of a dog and a cat.

- Hybrid image of Marylin and Einstein.

- Hybrid image of a fish and a submarine.



- Hybrid image of a bicycle and motor bike.

- Hybrid image of a plane and a bird