Master of Information Security

MIS4203 – Independent Studies in Information Security

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Study Number –10 - Steganography and Watermarking in the Spatial Domain

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TASK 1
There is a secret message hidden in “Image 1” and “Image 2”. Using the properties evident in the two images find the secret message.

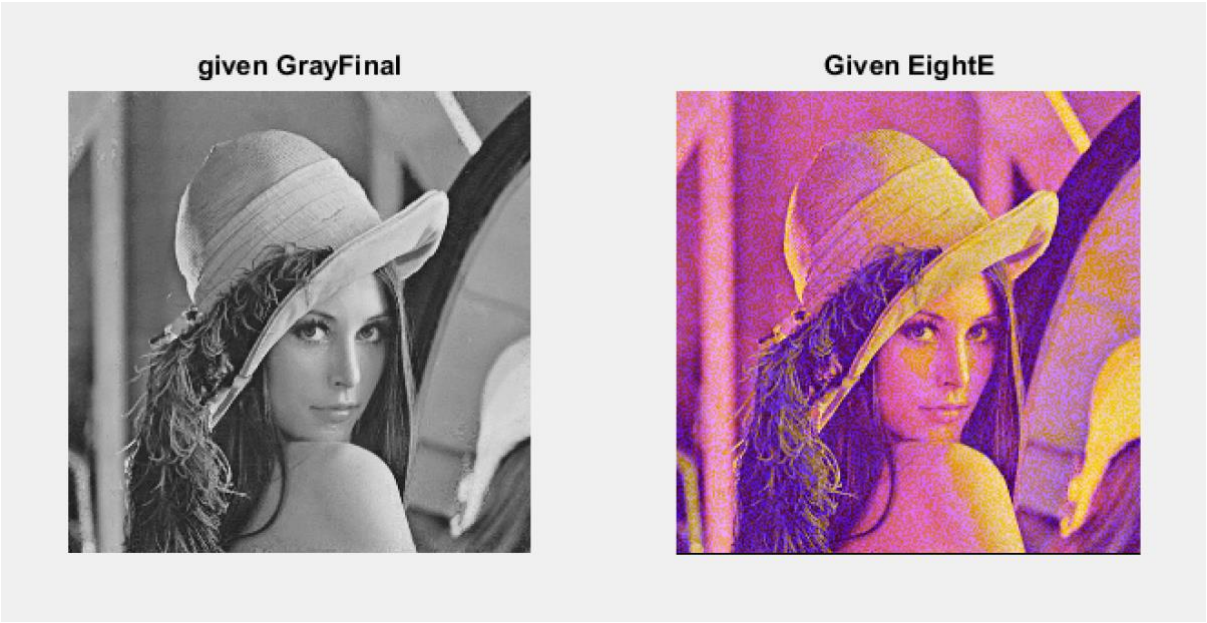
TASK 2
Using the secret message as the LSB pixel placement key, implement the Wong’s Algorithm. Your program should have both the embedding and the extraction of the “Watermark.png” from and to “Original.png”.

Approach

TASK 1
There is a secret message hidden in “Image 1” and “Image 2”. Using the properties evident in the two images find the secret message.

1. Get Gray image of Original.png
2. Break GrayFinal and Original.png in to bit planes.
3. Get the XOR of both image’s each bit planes and compare whether equal or not.
4. Find out the bit plane which can suspect hidden content.
5. Then get the EightE image’s channels (Red, Green and blue).
6. Combine each channel’s each bit planes with above found bit plane.
7. Secret message will be displayed at channel 3, 8th bit plane and below shown.

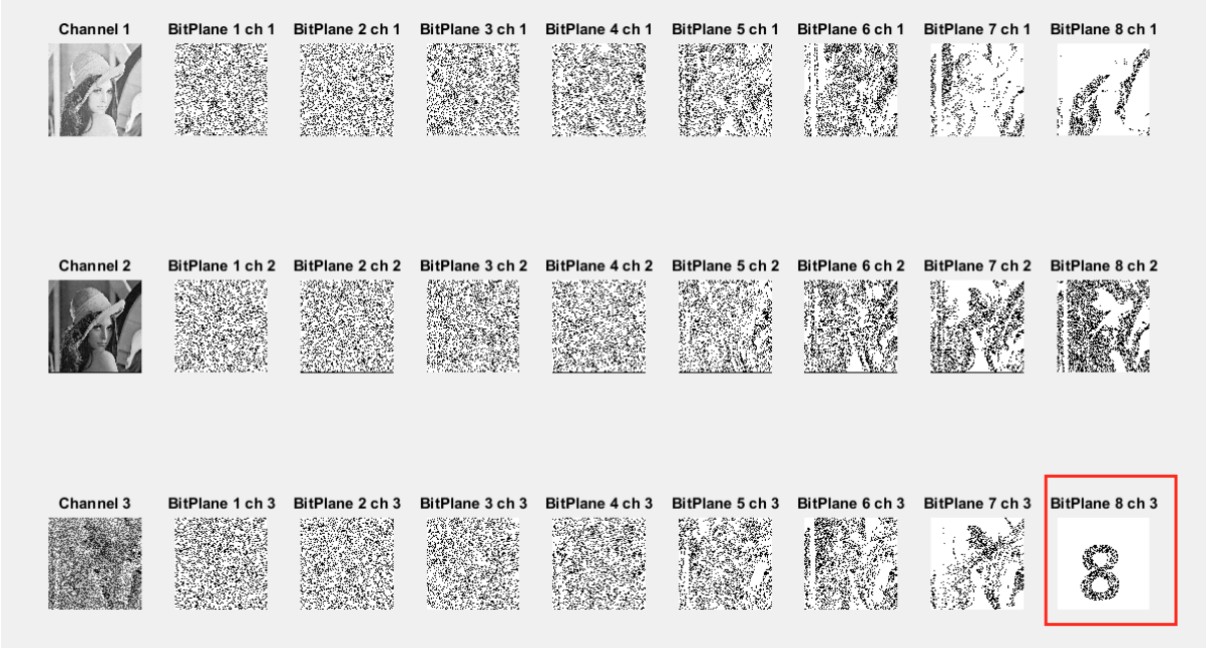
Loaded images



Found that 1st bit plane has not equal to original images 1st bit plane:

```
Command Window
  Is Originals equal? false
  Is Originals equal? So Image 1 must contain secret message,
  Comparing bit planes with Original Image bit planes
  Is bit plane 1 equal? false
  Is bit plane 2 equal? true
  Is bit plane 3 equal? true
  Is bit plane 4 equal? true
  Is bit plane 5 equal? true
  Is bit plane 6 equal? true
  Is bit plane 7 equal? true
  Is bit plane 8 equal? true
fx >>
```

Compression of combine bit plane 1 of image1 and bit planes for each channel of EightE (Image2.mat):



Matlab script are attached with submission file.

TASK 2

Using the secret message as the LSB pixel placement key, implement the Wong's Algorithm. Your program should have both the embedding and the extraction of the "Watermark.png" from and to "Original.png".

Matlab Script are attached with submission file.

********** End **********

End – Incident-05 **********