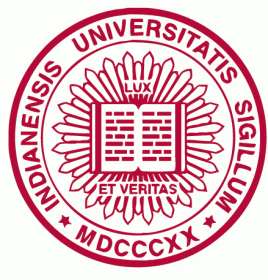
##### INDIANA UNIVERISTY BLOOMINGTON

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##### Assignment 1: Part 1 Fourier Domain

##### B657 Computer Vision

##### REPORT

###### *Submitted by*

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**Constants:**

Alpha: 10

Radius: (image\_size/2 – 50)

Watermark constant: 0.25

**Check for Watermark:**

Function signature:

Check\_image(SDoublePlane inputImage, int N) where N is the user input

The function checks whether a watermark is present in the image or not by calculating  
the Pearson’s correlation coefficient and compares it with a threshold value (in our case it is 0.25).

The correlation coefficient calculates the relation between the vector v (that is calculated based on the user input N) and the vector c which is calculated by calculating the real parts of the circle in the frequency domain.

**Add Watermark:**

Function signature:

Mark\_image(SDoublePlan inputImage, int N) where N is the user input.

The function adds a watermark in an image by creating a circle on the image of radius (length of image/2 – Radius) and with alpha value 10. The circle is created of N number of pixels where N is provided by the user. Now this circle is correlated to the vector v which is a binary vector.  The binary vector v = (v1, v2…..vl ) (with vi = ( 0, 1)  and the length l  a parameter of the watermarking algorithm) that appears to be a random sequence.  We can seed a random number generator with N, and then use the random number generator to produce the l binary digits. So, if the vector’s value is 1, then the pixel for the circle is highlighted else nothing happens.