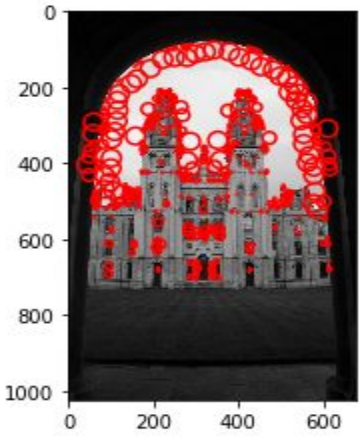
MCA Assignment 3
Pramil Panjawani

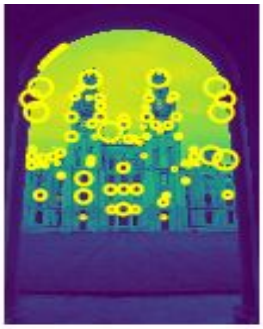
A) Auto Collerogram
Step 1: Color Quantise the image to reduce computation
Step 2: Calculate the coordinates for the same intensity pixel
Step 3: Calculate the distances between the points
Step 4: For each distance calculate the probability
Step 5: Repeat for different intensity pixels

b) Scale-invariant feature transformation

We define the LoG filter and then convolve the image with it.
We then find all local extrema detection followed by Non-maxima suppression.
We try it with different values of sigma keeping k=sqrt(2)
Note:- Defined LoG function from self but for placing blobs used[1]



C) SURF(Determinant of Hessian)
Step 1 Calculate the integral Image
Step 2 Calculate the determinant of hessian
Step 3 Determine the key points with the Hessian matrix and Non-Maxima suppression



Comparison

Laplacian of Gaussian

SURF

LoG - max_sigma=15, num_sigma=10 threshold=.1
DoH - max_sigma=30, threshold=.005

Laplacian of Gaussian

SURF

LoG - max_sigma=20, num_sigma=10 threshold=.1
DoH - max_sigma=20, threshold=.005