

# CS 565 Computer Vision – Assignment 3

Dr. Nazar Khan

May 19, 2014

**Due Date:** Wednesday, 28th May, 2014 before class.

**Note:** Run all programs in this assignment for images `illusory_square.jpg`, `kanizsa_triangle.jpg` and `mainecoastartists.jpg` and show your results.

## Edge Thickening

**Q1:** Write a program to make the edges of an input image thicker by

1.  $n$  pixels on the outside of the edge,
2.  $n$  pixels on the inside of the edge,
3.  $n$  pixels on both sides of the edge.

**Q2:** Write a program to make the edges of an input image more coherent. That is, move along the edge direction for  $n$  pixels (both ways) and copy current pixel's colour onto non-edge pixels.

## Line Detection

**Q1:** Write a program to detect lines in an input image. Use your program to detect lines in a Fourier spectrum image from Assignment 2.

## Circle Detection

**Q1:** Write a program to detect circles in an input image. Use your program to detect circles in the `circles.png` image.

## Submission

Submit your assignment via email to your TA Naila Hamid (naila.hamid@pucit.edu.pk) as a .zip file with the naming convention

CompleteRollNumber\_YourName\_Assignment3.zip

For example, if my roll number is MSCSF13M999, then my .zip file should be named

MSCSF13M999\_NazarKhan\_Assignment3.zip

The .zip file should contain the following directories:

- **EdgeThickening**
- **LineDetection**
- **CircleDetection**

The **EdgeThickening** directory should contain the following:

1. MATLAB code (.m files).
2. Resulting images.
3. A .txt file called README.txt describing your solution.

The **LineDetection** directory should contain the following:

1. MATLAB code (.m files).
2. Resulting images.
3. A .txt file called README.txt describing your solution.

The **CircleDetection** directory should contain the following:

1. MATLAB code (.m files).
2. Resulting images.
3. A .txt file called README.txt describing your solution.

**Note:** To submit your results in a beautiful looking .pdf file, the LaTeX source for this document is also provided in the Assignment3.tex file. You can use the command `\answer{}` to fill in your answers below each question. Please consult your TA for more help. **Remember: Word is ugly and LaTeX is beautiful!**