

Computer Vision

Homework 1

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In this , I will made a brief of descriptions my project (step by step).

Read image :

method : cv∷imread(“path of image file” , read\_ format);

1. Gray Image processing :

method :

1-1. Mat\_<\_tp> iterator : Set pointer , it point to first pixel(0,0) in image matrix ,then scan each pixel

* 1. \*iterator : read indicated pixel value
  2. Calculate Gray value at indicated pixel by 0.29\*G +0.58\*R + 0.114\*B
  3. then stored the result in Gray\_image matrix

1. Binary Image processing :

method :

2-1 Mat\_<\_tp> iterator : Set pointer , it point to first pixel(0,0) in image matrix ,then scan each pixel

2-2 \*iterator : read indicated pixel value

2-3 Determine this pixel value is 255 or 0

if \*iterator ≥ threshold , then binary\_pixel = 255

else binary\_pixel = 0

2-4 stored result .

1. Rotate\_image processing :

method :

Step 1 & 2 as the same previous processing method

then , new\_image(x,y) = old\_image(old\_image.rows –x , y)

the x ≔ x-axis coordination . y ≔ y-axis coorination

1. Mean\_filter\_image processing :

method :

Step 1 & 2 as the same previous processing method

4-3 Create Mask matrix (n\*n) n = 3,5,7….

4-4 Substitute mask\_matrix into each scanned pixel

4-5 Calculate indicated pixel and those pixel around indicated pixel average value

4-6 Stored result

1. Median filter processing :

method ;

Step 1 & 2 & 3 as the same Mean filter processing method

5-4 Sort those pixel around indicated pixel

5-5 pick middle element in vector of sort those pixel

5-6 stored result

1. Gaussian 2D filter processing

method :

Step 1 & 2 & 3 as the same Mean filter processing method

6-4 Substitute Gaussian module into selected those pixel by mask \_matrix

6-5 Stored result

**Result :**