Blending = (img1 * α) + img2 * β + γ

↓

Constant 0

day6 17/08/2023

SIMPLE THRESHOLDING

Threshold binary:

101	123	150
90	76	99
56	120	244

Matrix

255	255	255
0	0	0
0	255	255

ii) Thresh_binary_inv:

0	0	0
255	255	255
255	0	0

iii) Thresh_trunc :

threshold value = 100

100	100	100
90	76	99
56	100	100

iv) Thresh_tozero

101	123	150
0	0	0
0	120	244

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v) thresh_to_zero_inv :

0	0	0	
90	76	99	
56	0	0	11 12 15

order

ADAPTIVE THRESHOLDING

101	123	150
90	76	99
56	120	244

120	68	99
90	76	99
56	102	100

mean 117

0	255	255
0	0	0
0	255	255

255	0	255
255	0	255
0	255	255

mean 90

⇒ Image Filtering (18/08/2023) day 7

$$\begin{bmatrix} 3 & 0 & 1 \\ 1 & 5 & 8 \\ 2 & 7 & 2 \end{bmatrix} \times \begin{bmatrix} 1 & 0 & -1 \\ 1 & 0 & -1 \\ 1 & 0 & -1 \end{bmatrix}$$

$3 + 0 - 1 + 1 + 0 - 8 + 2 + 0 - 2 = -5$

Sharpen

Blur

$$\begin{bmatrix} 0.0625 & 0.125 & 0.0625 \\ 0.125 & 0.25 & 0.125 \\ 0.0625 & 0.125 & 0.0625 \end{bmatrix}$$

default values Sharpen

$$\begin{bmatrix} 0 & -1 & 0 \\ -1 & 5 & -1 \\ 0 & -1 & 0 \end{bmatrix}$$

DATE

Blending = (img1 * α)

day6 17/08/2023

Threshold binary:

101

90

Eg blur kernel

$$\begin{bmatrix}206\\0.0625\end{bmatrix} + \begin{bmatrix}205\\0.125\end{bmatrix} + \begin{bmatrix}247\\0.0625\end{bmatrix}$$

$$\begin{bmatrix}244\\0.125\end{bmatrix} + \begin{bmatrix}161\\0.25\end{bmatrix} + \begin{bmatrix}137\\0.125\end{bmatrix} +$$

$$\begin{bmatrix}192\\0.0625\end{bmatrix} + \begin{bmatrix}154\\0.0125\end{bmatrix} + \begin{bmatrix}75\\0.0625\end{bmatrix}$$

→ 178

→ different types of blurring: median, average, gaussian.

→ Kernel for average: $\frac{1}{9}\begin{bmatrix}1&1&1\\1&1&1\\1&1&1\end{bmatrix}$ (or) $\begin{bmatrix}1&1&1\\1&1&1\\1&1&1\end{bmatrix}/9$

→ Blurring is achieved by convolving the image with a low pass filter kern

① example for the above (kernel for average):-

$$\begin{matrix}3&9&11\\7&*15&8\\10&12&9\end{matrix} \qquad \begin{matrix}1&1&1\\1&1&1\\1&1&1\end{matrix} /9$$

$(3+9+11+7+15+8+10+12+9)/9 = 9$

$$\begin{matrix}15&8&8\\12&9&10\\9&11&2\end{matrix} \qquad \begin{matrix}1&1&1\\1&1&1\\1&1&1\end{matrix} /9$$

$(15+8+8+12+9+10+9+11+2)/9 = 9$

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Median filter:

3 9 11
7 15 8
10 12 9

→ 3 7 8 9 [9] 10 11 12 15

ascending order

center value = 9

DATE

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