

# Binary Image Processing Notes

HL

Lecture Notes for CMPE258  
Image/Video Pre-Processing for DNN  
Binary Image Processing Technique

$$\bar{x} \triangleq \frac{\iint_{\Omega} x B(x, y) dx dy}{\iint_{\Omega} B(x, y) dx dy} \dots (1)$$

Where, the Area of  $B(x, y)$  is defined as

$$A \triangleq \iint_{\Omega} B(x, y) dx dy \dots (2)$$

$$\bar{y} \triangleq \iint_{\Omega} y B(x, y) dx dy / A \dots (3)$$

And

$$m_{pq} \triangleq \frac{\iint_{\Omega} (x - \bar{x})^p (y - \bar{y})^q B(x, y) dx dy}{A}$$

Example, for  $p=2, q=1$ , we have

$$m_{21} = \frac{\iint_{\Omega} (x - \bar{x})^2 (y - \bar{y}) B(x, y) dx dy}{A} \dots (4)$$

Now, for  $\bar{x}^k$ , we have

$$\bar{x}^k \triangleq \frac{\iint_{\Omega} x^k B(x, y) dx dy}{A} \dots (5)$$

$$\bar{y}^k \triangleq \frac{\iint_{\Omega} y^k B(x, y) dx dy}{A} \dots (6)$$

For Computation Example, see the handout on the class Website.

(END)