

RDF - Séance 1

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1 Exercice 1

1.1 Question 1

$$M_{ij} = \sum_x \sum_y x^i y^j I(x, y)$$

$$M_{00} = 20 \times 128 = 2560$$

$$\begin{aligned} M_{10} &= \sum_x \sum_y x I(x, y) \\ &= 2 \times 2 \times 128 + 3 \times 4 \times 128 + 4 \times 4 \times 128 + 5 \times 4 \times 128 + 6 \times 4 \times 128 + 7 \times 2 \times 128 \\ &= 11520 \end{aligned}$$

$$\begin{aligned} M_{01} &= \sum_x \sum_y y I(x, y) \\ &= 2 \times 4 \times 128 + 3 \times 6 \times 128 + 4 \times 6 \times 128 + 5 \times 4 \times 128 \\ &= 8960 \end{aligned}$$

1.2 Question 2

$$\begin{aligned} \bar{x} &= M_{10}/M_{00} = 4.5 \\ \bar{y} &= M_{01}/M_{00} = 3.5 \\ \mu_{ij} &= \sum_x \sum_y (x - \bar{x})^i (y - \bar{y})^j I(x, y) \end{aligned}$$

$$\begin{aligned} \mu_{10} &= \sum_x \sum_y (x - \bar{x}) I(x, y) \\ &= 0 \end{aligned}$$

$$\begin{aligned}\mu_{01} &= \sum_x \sum_y (y - \bar{y}) I(x, y) \\ &= 0\end{aligned}$$

1.3 Question 3

$$\eta_{ij} = \frac{\mu_{ij}}{\mu_{00}^{1+(i+j)/2}}$$

$$\eta_{10} = 0$$

$$\eta_{01} = 0$$



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