Name of God

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Exercise number 1 of digital video processing

1- Problem 4 from the first chapter of the textbook:

1.4 For the following colors in the RGB coordinate, determine their values in the YIQ and YUV coordinates, respectively.

(a) (1,1,1); (b) (0,1,0); (c) (1,1,0); (d) (0, 1, 1).

2- Select frame number 54 from the Foreman video sequence with QCIF resolution, and save it as an RGB image in JPG format.

A) R, B, G components of this image are separated and each one is displayed as a gray level image

give

b) Repeat paragraph (a) for YUV and YIQ color systems.

c) Calculate the correlation between R and R, G and B, B and G components in the RBG color system. To calculate the correlation between the two images f and h, use the following relationship ("f is the complex conjugate of f, here, since the function f is real, its conjugate is equal to the function itself):

Correlation

$$f(x, y) * h(x, y) = \sum_{m=0}^{M-1} \sum_{n=0}^{-1} f^*(m, n)h(x + m, y + n)$$

d) Repeat paragraph (c) correspondingly for YUV and YIQ color systems.

(e) Compare the results of paragraphs (c) and (d). What can be concluded?