

Question

Two images will be compared with respect to the amount of high spatial frequencies in the horizontal direction:

0	0	0	1
2	3	2	2
1	1	1	1
3	3	3	2

1	3	2	1
2	0	3	1
2	3	0	1
0	3	2	1

a) Apply a cooccurrence matrices (second order joint probabilities, horizontal distance $|d|=1$) including an appropriate feature to carry out this comparison in a quantitative way

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- b) Describe in principle how the Fourier transform can be used for solving the same task as in a) and define a suitable Fourier-based feature which can be used for a similar quantitative comparison

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- c) Two images have identical autocorrelation functions. Do these images have to be identical? Motivate your answer.

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- d) Describe how we can extract a first order grayscale difference statistic from the cooccurrence matrices