## Question

An image (see below) is analysed with respect to its spatial frequencies in the horizontal and vertical directions, respectively:

 1
 2
 0
 3

 1
 2
 0
 3

 1
 3
 0
 2

 1
 3
 0
 2

a) Determine the autocorrelation function r(a,b) for the lags (a,b) = (1,0), (2,0), (3,0), (0,1), (0,2), and (0,3)



b) Interpret the results and describe what in general can be understood from the autocorrelation function



c) Construct cooccurence matrices  $(2^{nd} \text{ order joint} probabilities})$  for the same image as in a). Use the appropriate directions (for this problem) and the distance |d|=1



## d) Interpret the results and describe what in general can be understood from the cooccurence matrices

## Question

e) Apply a quantitative texture feature extracted from the matrices in c) and describe numerically the difference as it comes to spatial frequencies in the horizontal and vertical directions