

EE 641 DIGITAL IMAGE PROCESSING II

Assignment #4 - Spring 1996

Wednesday March 18, 1998

1) Get the Matlab simulation for the Ising model from the EE641 web page. Use it to generate various samples from the Ising model MRF.

a) Simulate 100 iterations each with β ranging from 0 to 5. What do you observe?

b) Simulate 100 iterations for $\beta = 5 * n * (1/M)$ where n is the iteration number. What do you observe?

2) Download the directory HW4Dir from the course web page. It will contain two images: noiseimg.tif and binary.tif. Each image is of size 384×256 . The image noiseimg.tif contains pixels from two distributions: Gaussian with mean 127, standard deviation 20; and Gaussian with mean 137, standard deviation 20. Compute the MAP segmentation using ICM optimization and the Ising model with

i) $\beta = 1$

ii) $\beta = 2$

iii) $\beta = 3$