EE 641 DIGITAL IMAGE PROCESSING II
Assignment #4 - Spring 1996
Tuesday February 20, 1996

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) Write a program for adding white Gaussian noise of variance σ^2 to the image:

/home/yake/bouman/images/pix/achromatic/img15_base.pgm

3) Compute an optimal noncausal predictor, by using the AR predictor computed for $p = 1$ in homework #2.

4) Use the coordinate descent method of optimization to compute the MAP restoration of the images with varying noise levels.