1044-60-84   **Bruce W Atkinson*** (`bwatkins@samford.edu`), Dept. of Math/CS, Samford University, Birmingham, AL 35229-2249. *An introduction to Markovian image models.* Preliminary report.

A random field is a probability measure on the set of images, where an image is an assignment of grey levels to vertices of a graph. We use the Gibbs sampler to realize a field, and explain how the sampler is improved if the field is Markovian. We assume a given image is a realization of a Markovian field and the observed image is a local degradation of it. The posterior distribution of the true image, given the degraded one, is also Markovian and a modification of the Gibbs sampler (an analog of simulated annealing) is used to "restore" the true image as a maximum likelihood estimate based on the posterior distribution. (Received August 21, 2008)