DEPARTMENT OF MATHEMATICS, UNIVERSITY OF HOUSTON

GRADUATE STUDENT SEMINAR

Random Gibbs Fields:
Application to Texture Identification in Numerical Images.

Robert Azencott

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Gibbs fields are stochastic models originally introduced by physicists to modelize the dynamics of large systems of small interactive magnets localized at the nodes of a 2D or 3D rectangular network of physical sites . 2D or 3D numerical images attach a positive “gray level” $J(p)$ to each node “p” of a rectangular grid of pixels (or voxels) ”Textures” are images where the gray level function J is far too irregular to be modelized by smooth functions,and is viewed as superpositions of vibrating patterns at various scales Textures can efficiently be modelized by random Gibbs fields, for automated texture identification, as well as for computer graphics simulations.