

Meeting: 1003, Atlanta, Georgia, SS 17A, AMS-SIAM Special Session on Nonsmooth Analysis in Variational and Imaging Problems, I

1003-68-1283 **Jackie Shen*** (jhshen@math.umn.edu), 206 Church Street, SE, School of Mathematics, UMN, Minneapolis, MN 55455. *A picture is worth a thousand words, but that depends...*

Most image and vision tasks are in essence illposed inverse problems, whose answers crucially rely upon proper regularizers in the Tikhonov framework, or equivalently, the *prior models* in the Bayesian decision theory. This talk explores image modeling from both the information-theoretic and analysis-theoretic points of view, and discusses how to properly characterize the information, smoothness, inhomogeneity, multiscale structures, as well as both the *Kolmogorov* and *Shannon* entropies of general images. Our goal is to be able to quantify and refresh the ancient cliché subconsciously shared in many cultures “A picture is worth a thousand words.” But should it be actually 618 or 1571?

This is an ongoing project with Professors Song-Chun Zhu and Yingnian Wu at the Statistics Department of UCLA, both working on vision and image modeling. (Received October 04, 2004)