

How I fixed Mona Lisa

Eugene Demidenko
Dartmouth College

Thursday, April 20, 2006
L01 Carson Hall, 4:00 pm
(Tea 3:30 pm Math Lounge)

Abstract

The talk is about image statistics, namely, how statistical approach can be used for digital image enhancement and analysis. The existing image processing techniques deal with one image at a time. However, current scientific problems require simultaneous analysis of ensemble of images. An immediate consequence is the fact that images of the same object, scene, tissue sample, vary. That is why images are random and statistical approach becomes relevant. As an example of a statistical approach, I apply the entropy principle to optimal reduction of a color image to grayscale. It appears that the entropy-transformation improves a fading color image of Mona Lisa. Another application of image statistics is to cancer cells. In particular, we want to determine if there is a synergy in chemotherapy and radiation.