Who: Aaron Hertzmann

Title: Removing Camera Shake from a Single Photograph

Place and Time: Soda 405, 4pm, Wed. Apr. 19.

Abstract:

Camera shake during exposure leads to objectionable image blur and ruins many photographs. Conventional blind deconvolution methods typically assume frequency domain constraints on images, or overly simplied parametric forms for the motion path during camera shake. Real camera motions can follow convoluted paths, and a spatial domain prior can better maintain visually salient image characteristics. We introduce a method to remove the effects of camera shake from seriously blurred images. The method assumes a uniform camera blur over the image, negligible in-plane camera rotation, and no blur due to moving objects in the scene. The user must specify an image region without saturation effects. I'll discuss issues in this blind deconvolution problem, and show results for a variety of digital photographs.

Invitation: I invite audience members to submit a few examples of motion-blurred photographs to me a few days before the talk. I'll show the examples and our algorithm's output on these examples during the talk. Make sure that the images have blur due to camera motion, rather than just being out-of-focus. If you have a favorite blind deconvolution algorithm, you can also send me that algorithm's result and I'll show that too.

Joint work with Rob Fergus, Bill Freeman, Sam Roweis, and Barun Singh.