

# **Restoration of Non-astronomical Images Using Iterative Blind Deconvolution**

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When viewing images through telescopes, the image that is seen is distorted due to atmospheric turbulence. Likewise, when imaging into the eye, there are distortions that cause retinal images to be blurry. With an image processing technique known as iterative blind deconvolution, the blurred images can be sharpened. When only the observed image is known within the system, blind deconvolution attempts to compute both the true object scene and the point spread function which caused the blurry observed image. In order to demonstrate this process, blurred imagery will be created of point sources and extended scenery by simulation methods as well as selected from real data such as surveillance imagery and AO corrected retinal imagery. Testing of the CfAO hosted software called "Iterative Deconvolution Algorithm in C" (IDAC) will be performed on multiple sets of data. Experiments consist of varying iterations and input point spread functions (PSF) in order to observe the image improvement and run times. Results with both simulated and real imagery indicate that image restoration is best when an adequate number of iterations are used and the initial point spread function estimate is very close to the actual point spread function.