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Walid Sharabati* (wsharaba@purdue.edu), 250 N University St, Department of Statistics, West Lafayette, IN 47907, and **Yanling Zhao**. *De-noising and Deblurring Images Based on Tichonov Regularization With Random Data*.

In this work, we present a stochastic model to the inverse problem in image analysis based on Tikhonov regularization with random input data to reconstruct the original image and reduce noise. We assume the noise induced on the image is Gaussian or white noise. The optimizer produces a nonlinear system of equations. We introduce a stochastic smoothing or blurring operator acting on the image, and another random Tikhonov parameter. The stochastic model reduces the mean square error of the denoised and deblurred image by about 20% on average compare to the deterministic model. (Received September 16, 2014)