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Julianne M Chung* (jmchung@cs.umd.edu), Computer Science Department, University of Maryland, College Park, MD 20742, and **Dianne O’Leary** and **Glenn Easley**. *An Efficient Multi-channel Approach for Image Deblurring*.

Image deblurring is an important application that arises in a variety of scientific applications ranging from satellite imaging to medical image processing. Given a blurred image that is contaminated with noise, the goal is to reconstruct an approximation of the true image. This is an ill-posed inverse problem, meaning small perturbations in the data may result in large errors in the solution. Filtering techniques such as Tikhonov regularization can be used to filter out hazardous components of the inverse solution and compute stable solutions. However, one of the main computational difficulties in image deblurring is that the blurring matrix is prohibitively large. By incorporating assumptions on the blur structure as well as on the boundary conditions, highly specific matrix structures can be exploited for efficient matrix computations. In this talk, we present a new multi-channel approach for Tikhonov regularization in the context of image deblurring and describe methods for choosing regularization parameters in a multi-channel framework. (Received January 25, 2010)