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**Yifei Lou\*** (louyifei@gmail.com), University of California Irvine, 340 Rowland Hall, Irvine, CA 92697, and **Ernie Esser, Hongkai Zhao** and **Jack Xin**. *Partially blind deblurring of barcode from out-of-focus blur*. Preliminary report.

This paper addresses the nonstationary out-of-focus (OOF) blur removal in the application of barcode reconstruction. We propose a partially blind deblurring method when partial knowledge of the clean barcode is available. In particular, we consider an image formation model based on geometrical optics, which involves the point-spread function (PSF) for the OOF blur. With the known information, we can estimate a low-dimensional representation of the PSF using the Levenberg-Marquardt algorithm. Once the PSF is obtained, the image deblurring is followed by quadratic programming. We find  $[0,1]$  box constraint is often good enough to enforce binary signal. Experiments on the real data demonstrate that the forward model is physically realistic and our partially blind deblurring method can yield good reconstructions. (Received August 26, 2013)