1014-65-1208   **Tsung-Lin Lee*** (`leetsung@msu.edu`), Department of Mathematics, Michigan State University, East Lansing, MI 48824, **T. Y. Li** (`li@math.msu.edu`), Department of Mathematics, Michigan State University, East Lansing, MI 48824, and **Zhonggang Zeng** (`Z-Zeng@neiu.edu`), Department of Mathematics, Northeastern Illinois University, Chicago, IL 60625. *Computing the approximate rank of large inexact matrices.*

Rank-revealing is one of the basic ill-posed problems and widely applicable in scientific computation. In low-rank or low-nullity cases, the standard SVD is costly in both computing time and storage. Thus, efficient and reliable methods are in demand as alternatives. Following up on a recent rank-revealing algorithm by T.Y. Li and Z. Zeng on low-nullity case, we present a new rank- revealing algorithm for low-rank matrices with updating and downdating capabilities. A comprehensive computing experiment shows the new method is significantly faster than other rank-revealing algorithms. (Received September 27, 2005)