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**Stacey Levine\*** ([sel@mathcs.duq.edu](mailto:sel@mathcs.duq.edu)), 440 College Hall, Department of Mathematics & Computer Science, Pittsburgh, PA 15282. *A variational approach for exposure bracketing*. Preliminary report.

In this work we tackle the problem of fusing a set of images so that optimal information is obtained from each one. We propose a variational approach for fusing a set of bracketed images taken with different exposure times. The solution is a single image whose details and edges are extracted from a short exposure time image (typically low contrast) and color information is extracted from a long exposure time image (often suffering from motion blur). The approach is well posed and preserves level lines from the low contrast image. Numerical results demonstrate its effectiveness and improvements over the current state of the art. (Received August 10, 2010)