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440 College Hall, Pittsburgh, PA 15282. *A variational approach for exposure bracketed images.*

We propose a variational approach for fusing a set of images taken with different exposure times so that optimal information is obtained from each one. 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 generally preserves level lines from the low contrast image. The method is able to handle camera and subject motion as well as noise, and results compare favorably with the state of the art. (Received August 30, 2011)