**Abstract**

This paper proposes using a mosaic image patches composed of the most informative edges found in the original blurry image for the purpose of estimating a motion blur kernel with minimum computational cost. To select these patches we develop a new image analysis tool to efficiently locate informative patches we call the informative-edge map. The combination of patch mosaic and informative patch selection enables a new motion blur kernel estimation algorithm to recover blur kernels far more quickly and accurately than existing state-of-the-art methods. We also show that patch mosaic can form a framework for reducing the computation time of other motion deblurring algorithms with minimal modification. Experimental results with various test images show that our algorithm to be 5-100 times faster than previously published blind motion deblurring algorithms while achieving equal or better estimation accuracy.

**Patch Mosaic is a new way of representing a blurry image for fast motion deblurring**

**How do we select patches and make Patch Mosaic?**

We want to include the most informative edges of every orientation angle found in the blurry image.

**Boundary artifact**

We add the boundary mask to eliminate the artifact caused by the discontinuity between adjacent patches.

**Motion Deblurring? Powerful but Slow and Expensive**

Recently, motion deblurring shows remarkable performance in estimating latent image out of motion blurred image. However, most of the algorithms require significant amount of time in estimating single latent HD resolution image.

**Patch Mosaic can be easily integrated in existing motion deblurring algorithms**

**How accurate is it?**

We used 32 different images to evaluate the performance of our algorithm. Over all, our algorithm shows the best accuracy compared to other algorithms.

**How fast is it?**

Our algorithm is 4 to 86 times faster than previously published blind motion deblurring algorithms even though it is Matlab script.

**Results**

Our algorithm shows the most natural details in the eye area among all the algorithms.

**Acknowledgement**

This material is based upon the work supported by the National Science Foundation under Grant No. 0933694, Air Force Office of Scientific Research under Grant No. FA9550-10-1-0038. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.