

Defocus blur is extremely common in images captured using optical imaging systems. It may be undesirable, but may also be an intentional artistic effect, thus it can either enhance or inhibit our visual perception of the image scene. For tasks, such as image restoration and object recognition, one might want to segment a partially blurred image into blurred and non-blurred regions. In this paper, we propose a sharpness metric based on local binary patterns and a robust segmentation algorithm to separate in- and out-of-focus image regions. The proposed sharpness metric exploits the observation that most local image patches in blurry regions have significantly fewer of certain local binary patterns compared with those in sharp regions. Using this metric together with image matting and multi-scale inference, we obtained high-quality sharpness maps. Tests on hundreds of partially blurred images were used to evaluate our blur segmentation algorithm and six comparator methods. The results show