

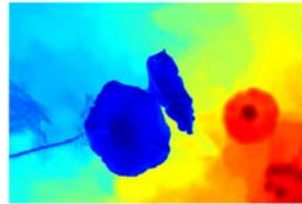
Research Highlight: Estimating Defocus Blur via Rank of Local Patches

Work of Associate Professor JI Hui

A/Prof JI Hui and co-authors developed a new computational method for estimating spatially variant defocus map of images by digital camera. Defocus map measures the blur degree caused by out-of-focus of each image pixel, which is closely relate to ordinal depth map of the scene. There is a wide range of applications of defocus map in image processing and robotic vision, e.g. image quality assessment, image refocusing, and scene segmentation. Motivated by theoretical analysis which relates the defocus blur amount to the maximum rank of local image patches with different orientations, an efficient numerical method is developed for estimating defocus blur at image edges. The proposed method is extensively evaluated on real image dataset, and show its superior performance to existing approaches.



Image



Defocus map



Segmention

Reference:

Guodong Xu, Yuhui Quan, and Hui Ji, Estimating defocus blur through rank of local patches, 16th International Conference on Computer Vision, (ICCV), Venice, 2017