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标题: Depth Map Upsampling via Progressive Manner Based on Probability Maximization

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摘要: Depth maps generated by modern depth cameras, such as Kinect or Time of Flight cameras, usually have lower resolution and polluted by noises. To address this problem, a novel depth upsampling method via progressive manner is proposed in this paper. Based on the assumption that HR depth value can be generated from a distribution determined by the ones in its neighborhood, we formulate the depth upsampling as a probability maximization problem. Accordingly, we give a progressive solution, where the result in current iteration is fed into the next to further refine the upsampled depth map. Taking advantage of both local probability distribution assumption and generated result in previous iteration, the proposed method is able to improve the quality of upsampled depth while eliminating noises. We have conducted various experiments, which show an impressive improvement both in subjective and objective evaluations compared with state-of-art methods.

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