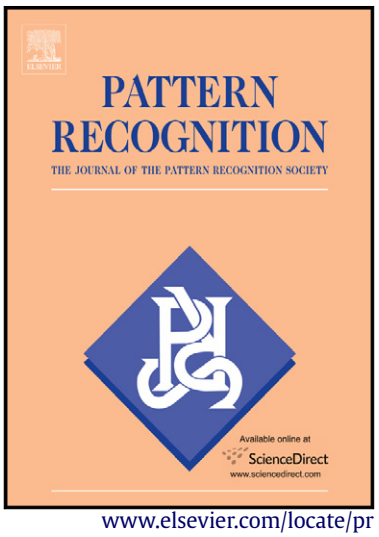

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Guided Image Completion by Confidence Propagation*

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Abstract

This paper presents a new guided image completion method which fills any missing values by considering information from a guidance image. We develop a confidence propagation scheme that allows the filling process to be carried out globally without the need of deciding the filling order. We conduct experiments in several applications where the problem can be formulated into a guided image completion problem, such as interactive segmentation and colorization. The experimental results show that our method provides good results and succeeds in situations where conventional methods fail. In addition, as all building blocks are parallel processes, our method is much suitable for hardware acceleration.

Keywords:
Confidence propagation, Image completion, Image segmentation, Colorization

1. Introduction

Many computer vision and graphics applications involve an image completion process to restore damaged parts of an image or to infer pixel values in the unknown parts based on the known parts, so that the resultant images look natural. Such techniques are often used in applications for filling holes which are left behind after removing objects from photographs, or for colorizing images based on some color strokes provided by users.

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