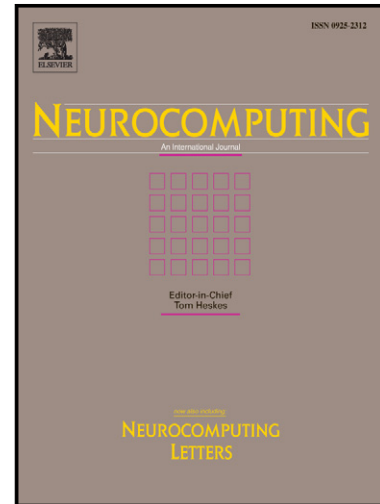


Author's Accepted Manuscript

Image completion with multi-image based on entropy reduction

Hao Wu, Zhenjiang Miao, Yi Wang, Jingyue Chen, Cong Ma, Tianyu Zhou



www.elsevier.com/locate/neucom

PII: S0925-2312(15)00151-4
DOI: <http://dx.doi.org/10.1016/j.neucom.2014.12.088>
Reference: NEUCOM15129

To appear in: *Neurocomputing*

Received date: 3 September 2014
Revised date: 5 December 2014
Accepted date: 9 December 2014

Cite this article as: Hao Wu, Zhenjiang Miao, Yi Wang, Jingyue Chen, Cong Ma, Tianyu Zhou, Image completion with multi-image based on entropy reduction, *Neurocomputing*, <http://dx.doi.org/10.1016/j.neucom.2014.12.088>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Image completion with multi-image based on entropy reduction

HaoWu¹, Zhenjiang Miao¹, Yi Wang^{1,2}, Jingyue Chen¹, Cong Ma¹, Tianyu Zhou¹

¹School of Computer and Information Technology, Beijing Jiaotong University

²Robotics Institute, Carnegie Mellon University

ABSTRACT

In this study, we present a new image completion method based on image entropy reduction. We complete the missing region with semantically matching images, which maximizes the reduction in the combined entropy of all regions in the image. We use labeled regions (high confidence regions) to complete the uncertain regions. By contrast, existing image completion methods focus on simple filling and ignore creative and semantic matching completion. Entropy reduction can yield higher accuracy of semantic image matching than existing image completion methods. We use Poisson blending and blending optimization (color handling) to complete the missing region with higher-quality results. The superiority of our method to existing image completion algorithms is validated. Experiments using an image database show that our method significantly improves the completion results.

KEYWORDS—Image completion; Semantic matching; Image entropy; Joint entropy; Gist; SIFT; Poisson blending

1. INTRODUCTION

Image completion (also called hole filling or inpainting) is used to replace or fill in the missing region of an image with new data in such a manner that the modification cannot be detected. Previous research details two classical strategies for image completion.

1.1 Discussion on related work

In the first strategy, the missing region is reconstructed by extending data from the original image. The most significant methods involve extending adjacent contours and textures into the missing region [1, 2, 3, 4, 5]. This concept uses example-based texture

Download English Version:

<https://daneshyari.com/en/article/6865893>

Download Persian Version:

<https://daneshyari.com/article/6865893>

[Daneshyari.com](https://daneshyari.com)