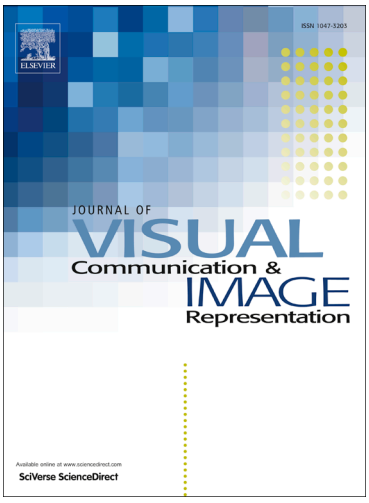

A critical survey of state-of-the-art image inpainting quality assessment metrics

Muhammad Ali Qureshi, Mohamed Deriche, Azeddine Beghdadi, Asjad Amin

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A critical survey of state-of-the-art image inpainting quality assessment metrics

Muhammad Ali Qureshi[a,b,*], Mohamed Deriche[a], Azeddine Beghdadi[c], Asjad Amin[a,b]

[a] *King Fahd University of Petroleum and Minerals (KFUPM), Dhahran 31261, Saudi Arabia*
[b] *The Islamia University of Bahawalpur, Pakistan*
[c] *L2TI, Institut Galilée, Université Paris 13, Sorbonne Paris Cité, France*

Abstract

Image inpainting is the process of restoring missing pixels in digital images in a plausible way. Research in image inpainting has received considerable attention in different areas, including restoration of old and damaged documents, removal of undesirable objects, computational photography, retouching applications, etc. The challenge is that the recovery processes themselves introduce noticeable artifacts within and around the restored image regions. As an alternative to subjective evaluation by humans, a number of approaches have been introduced to quantify inpainting processes objectively. Unfortunately, existing objective metrics have their own strengths and weaknesses as they use different criteria. This paper provides a thorough insight into existing metrics related to image inpainting quality assessment, developed during the last few years. The paper provides, under a new framework, a comprehensive description of existing metrics, their strengths, their weaknesses, and a detailed performance analysis on real images from public image inpainting database. The paper also outlines future research directions and applications of inpainting and inpainting-related quality assessment measures.

Keywords: Image inpainting, Image quality assessment, Inpainting quality, Inpainting databases, Image inpainting quality assessment, Survey

[*] Corresponding author:
Email address: ali.qureshi@iub.edu.pk (Muhammad Ali Qureshi)