

The multifocus images fusion based on a generative gradient map

Ismail & Kamarul Hawari Bin Ghazali

^a Universiti Malaysia Pahang, Gambang, Pahang, Malaysia

^b Politeknik Negeri Padang, Padang, Indonesia

ABSTRACT

The limitation of camera lens is inability to make focus region for whole scene in one shot image. The camera creates one focus object for one image. It is needed several images to get many focus objects of the scene. It makes difficult to read many focus objects from several images. Multifocus image fusion is a process of combining many focus objects from several images into one image. This operation gives easier way to read focus information from many images clearer. It commonly needed in medical examination, robotics and bioinformatics fields. The clearness information enables machine, computer and human understand the image better and prevents any mistake. In an image, the clear object is only located in focus region. In order to generate all objects in focus region, the multi focus images will be fused into fused image. The methods generally use complicated mathematic equation and hard algorithm. In addition to handle the problem, we design a simple way and have accurate output. Our method is the multifocus image fusion based on generative gradient map. By generative gradient map, it quickly determines the initial prediction of focus region precisely. The Generative gradient map is the external information, generated from gradient of blurred random number image. This procedure substitutes complicated mathematical equations or hard algorithm sequence implementation. Finally, our algorithm able to produces a fused image with high quality. The assessment of our method is according to Mutual Information and Structure Similarity parameter.

KEYWORDS

Generative gradient map; Multifocus image fusion; Simple method

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