Feature-Based Mosaicking Techniques for Document Images Captured by Camera Phones

廖嘉仁、曾逸鴻

E-mail: 9511035@mail.dyu.edu.tw

ABSTRACT

Many researchers pay attention to aerophotography mosaicking for a long time. Recently, in order to record what they see, general humans always take photos by camera phones. The scenery may be too large and cannot be captured in a photo. Users must take many photos to completely record the scenery. These photo images must be mosaic to become a whole scenery image. In this study, we propose a feature-based mosaicking approach for document images captured by a camera phone. All captured document images are first binarized by a modified local adaptive thresholding method. Then, all elements of a document image are collected by a connected component detection method. Several features, such as aspect ratio, black pixel density, crossing stroke count, and peripheral background area, of each component are extracted and matching with those from other components of another document image. A lot of matched components are determined as mosaicking points and used to shift, rotate, shrink or expand another image to mosaic two document images. Finally, the color intensity in the assembled region are adjusted to smoothing the whole mosacking image.

Keywords : image binarization ; connected-components ; feature extraction ; image mosaicking

Table of Contents

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