

題目: Intelligent Region-based Thresholding for Color Document Images with
Highlighted Region

摘要:

The study applies an intelligent region-based thresholding method for the binarization of color document images with highlighted regions. The results also indicate that the proposed method can threshold simultaneously when the background is gradually-changing, reversed, or inseparable from the foreground, with efficient binarization results. Rather than the traditional method of scanning the entire document at least once, this method intelligently divides a document image into several foreground regions and decides the background range for each foreground region, in order to effectively process the detected document regions. Experimental results demonstrate the high effectiveness of the proposed method in providing promising binarization results with low computational cost. Furthermore, the results of the proposed method are more accurate than global, region-based, local, and hybrid methods. Images were analyzed using MODI OCR measurement data such as recall rate and precision rate. In particular, when test images produced under inadequate illumination are processed using the proposed method, the binarization results of this method have better visual quality and better measurable OCR performance than compared global, region-based, local, and hybrid methods. Moreover, the proposed algorithm can be run in an embedded system due to its simplicity and efficiency.