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RESEARCH ARTICLE



Degraded Documents Recovering by Using Adaptive Binarizations and Convex Hull Concept

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Abstract— As a challenging task involved in recovering an original contents of the various degraded documents due to overlapping of both text and images, fatherly image of a damaged book page often suffers from the various scanning collapse known as scanning shading, dark borders noises and foreground problem. These collapses will degrade the qualities of the scanned documents and cause many problems in the subsequent process of document image analysis. In this paper, we have to propose the two concepts for recovering original quality contents of degraded documents. An adaptive binarizations technique that shows these issues reductions by using adaptive pixel per matching. The adaptive pixel matching is a combination of the local image contrast and the local image gradient that is tolerant to text and background variation caused by different types of document degradations. Convex hull algorithm method proves to be outstandingly effective for image shading correction and dark border noise removal. It can restore a desired blackness free document and meanwhile yield an illuminated surface of high quality.

Keywords— adaptive binarization, convex Hull, combinational Hungarian algorithm, pixel per symbol matching

Full Text: <http://www.ijcsmc.com/docs/papers/February2014/V3I2201456.pdf>