

Abstract: Business Card Recognition using Enhanced FCM-based RBF Networks

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Abstract

In this paper, we proposed a novel hierarchical algorithm to recognize English business cards. The algorithm processes multi-resolution images of business cards hierarchically to firstly extract individual characters and then to recognize the characters by using an enhanced FCM-based RBF network. Firstly, horizontal smearing is applied to a 1/3 resolution image in order to extract the areas that only include characters from the business card image. Second vertical smearing and contour tracking masking, is applied to a 1/2 resolution image in order to extract individual characters from the character string areas. And lastly, the original image is used in the recognition step, because the image accurately includes the morphological information of the characters precisely. To recognize characters with diverse font types and sizes, we also proposed the enhanced FCM-based RBF network that organizes the middle layer effectively by using the enhanced FCM algorithm. The results of experiments on a large number of business card images showed that the proposed algorithm greatly improves the character extraction and recognition compared with the conventional recognition algorithms.