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Cheng-Huang Tung, En-Yih Jean

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Stroke-Order-Free On-line Chinese Character DP Recognition by Two-layer Bipartite Weighted Matching

Cheng-Huang Tung, En-Yih Jean*

Associate Professor, Department of Computer Science and Information Engineering
National Pingtung University, 90004 Taiwan
No. 51, Mingsheng East Road, Pingtung, Taiwan
chdong@mail.nptu.edu.tw
***Department of Computer Science and Information Engineering,**

Aletheia University

E-mail: chdong@mail.nptu.edu.tw, enyichn@mail.au.edu.tw

Stroke-Order-Free On-line Chinese Character DP Recognition by Two-layer Bipartite Weighted Matching

Abstract

Dynamic programming (DP) is good at recognizing on-line standard-stroke-order Chinese characters. We propose a two-stage bipartite weighted matching to rearrange the stroke order of a test on-line Chinese handwriting before recognition. At the first layer, for each stroke pair which matches one stroke in the test handwriting with one stroke in the reference character, we generate a stroke-based vector graph (SVG) and the bipartite weighted matching determines the best stroke permutation of the handwriting, stroke-based matched vector graph (SMVG), from the SVG. At the second layer, we superimpose all SMVGs to form a character-based vector graph (CVG), and the bipartite weighted matching calculates the final stroke mapping between the test handwriting and the reference character. Experimental results reveal that the modified split-and-merge DP matching using the stroke adjustment method recognizes on-line stroke-order-varied handwritings with accuracy 89%, much higher than accuracy 5.2% for the original split-and-merge DP matching.

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