

Fast and Layout-Free Camera-Based Character Recognition on Complex Backgrounds

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I. OVERVIEW OF DEMONSTRATION

Recognizing characters in a scene is a challenging and unsolved problem. In this demonstration, we show an effective approach to cope with the problems: recognizing Japanese characters including complex characters such as Kanji (Chinese characters), which may not be aligned on a straight line and may be printed on a complex background.

In the demo, we address the problems above. Our demo is based on our recognition method [1], [2] and the method is applied to image sequences captured with a web camera. Figure 1 shows an overview of the recognition method. The recognition method is based on local features and their alignment. The idea is that if the local features locate in the query image in the same alignment as ones in a reference image, the character of the reference image should exist in the region of the query image. Using a tracking method, recognition results and extracted features are accumulated so as to increase recognition accuracy as time goes on. The demo runs about 1 fps on a standard laptop computer.

A result is shown in Fig. 2. The original query image is shown on the left and the corresponding recognition result is shown on the right. The recognition result was obtained by a capturing printed query image with a web camera and the recognition method is applied to the image. Red rectangles represent bounding boxes of recognized characters and recognition results were superimposed on them.

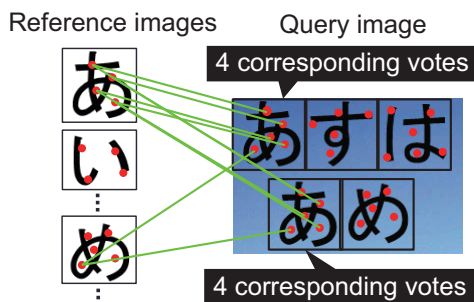
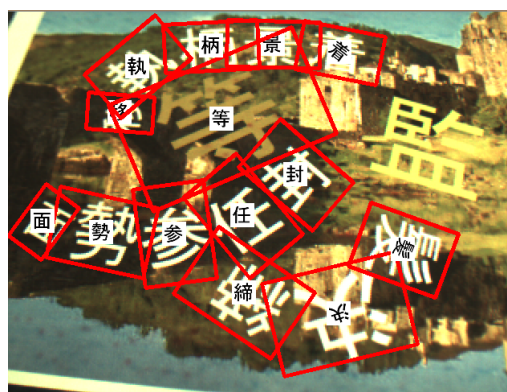


Fig. 1: An overview of the proposed method. Red points represent local features extracted and green lines do correspondences of features. Recognition results (characters and their bounding boxes) are determined at once based on correspondences of local features and their alignment.



(a) Query image.



(b) Recognition result.

Fig. 2: An example that was recognized by the demo system. The recognition result was obtained by capturing a part of the printed query image.

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REFERENCES

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