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Title: Fast Contour-Tracing Algorithm based on Pixel-Following Method for Image Sensors

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Abstract: Contour pixels distinguish objects from background. To trace and extract contour pixels is widely used for smart/wearable image sensor devices, because it is simple and useful to detect objects. In this paper, we present a novel contour-tracing algorithm for fast and accurate contour following. The proposed algorithm distinguishes between different types of contour such as a local pattern-type based on its relative location among several contour pixels, and it then traces the next contour pixel using the previous one. Therefore, it can classify the type of contour pixels as a straight line, inner corner, outer corner, and inner-outer corner, and it can extract pixels of a specific contour type. Moreover, it can trace contour pixels rapidly because it can determine the local minimal path using the contour case. In addition, the proposed algorithm is capable of compressing data of contour pixels using the representative points and inner-outer corner points, and it can accurately restore the contour image from the data. To compare the performance of the proposed algorithm with that of conventional techniques, we measure their processing time and accuracy. In the experimental results, the proposed algorithm shows better performance compared to the others, and it can provide compressed data of contour pixels and restore them accurately, including the inner-outer corner, which cannot be restored using conventional algorithms.

review : 평론, 재조사, 재검토, 다시 조사하다, 복습하다

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Comments and Suggestions for Authors

This paper proposed an efficient contour-tracing algorithm, which achieves very high performance with very few resources, e.g., processing time and memory. I

think the proposed contour-tracing algorithm is practical. I think only some minor revisions are needed before published.

In line 420, "... uses data from Tables 7-7", which table?

In Figure 20, the authors said "Red Pixels are Contour Pixels", but I did not find red pixels in this Figure.

Date & Signature

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