Detection and Recognition of Business Signs in the Nighttime

吳祥瑞、曾逸鴻

E-mail: 389427@mail.dyu.edu.tw

ABSTRACT

In business signs detection and recognition of the study, most of them explore the daytime scenes. so the detection and recognition of business signs at night there are still many can be explored. Therefore, this thesis proposes an effective method for detection and recognition business signs at night to enhance the detection and recognition accuracy business signs at night. First, the user can according to requirements set in the scene screen region of interest (ROI). The system in the region of interest, to identify possible business signs is relatively bright area. Then the bright areas captured pixel RGB color distribution, isolate different background block business signs. Next, the business signs area of the image to make clear of treatment, and then through the binarization and connecting components scene detection methods to identify the text area. Capture the text came out, users want to search for keywords and synonym thesaurus to do with the specific sign OCR text retrieval. In this thesis, the experimental analysis confirms enhance detection and recognition accuracy of business signs in the nighttime.

Keywords : Night video、Business signs、Image recognition、Synonym

Table of Contents

REFERENCES

一、中文部分 [1]宋光凱, 曾逸鴻, "視訊畫面之特定符號判定與檢索", 第十三屆電子化企業經營管理理論與實務研討會, 2012. 二、英文部分 [2]G. Xinbo, Y. Yimin, T. Dacheng, and L. Xuelong,“ Discriminative Optical Flow Tensor for Video Semantic Analysis, ” Computer Vision and Image Understanding 113, pp. 372 – 383, 2009.

[3]L. Congcong, L. Chih-Wei, Y. Shiaw-Shian, and C. Tsuhan,“ Joint Optimization of Background Subtraction and Object Detection for Night Surveillance, ” IEEE International Conference on Image Processing, 2011.

[4]M. Shahrizat Shaik, T. Nooritawati Md, and A. Ramli,“ Background Modelling and Background Subtraction Performance for Object Detection, ” International Colloquium on Signal Processing and Its Applications, 2010.

[5]K. Mohammad and B. Alireza,“ Text Localization, Extraction and Inpainting in Color Images, ” Iranian Conference on Electrical Engineering, pp. 15-17, 2012.

[6] L. Li, W. Huang, I. Y. H. Gu, and Q. Tian,“ Statistical Modeling of Complex Backgrounds for Foreground Object Detection, ” IEEE Transactions on Image Processing, Vol. 13, No. 11, pp. 1459-1472, 2004.

[7] F. H. Cheng and Y. L. Chen,“ Real Time Multiple Objects Tracking and Identification Based on Discrete Wavelet Transform, ” Pattern Recognition, Vol. 39, No. 3, pp. 1126-1139, 2006.

[8] M. Tagliasacchi,“ A Genetic Algorithm for Optical Flow Estimation, ” Image and Vision Computing, Vol. 25, No. 2, pp. 141-147, 2007.

[9]N. Matsunobu, K. Yoichi, I. Chikako and N. Makoto, “ Extraction of Character Sequence from Electric Signboards in Night Scene Images, ” SICE Annual Conference, 2012.
[10] J. Y. Kuo., Tai Yu L., Fu-Chu H., and Kevin L., “ The Color Recognition of Objects of Survey and Implementation on Real-Time Video Surveillance, ” IEEE International Conference on Systems Man and Cybernetics, 2010.
[11] Q. Fei, F. Bin, and Z. Hengjun, “ Traffic Sign Segmentation and Recognition in Scene Images, ” Chinese Conference on Pattern Recognition, 2010.
[12] S. Xu, “ Robust Traffic Sign Shape Recognition Using Geometric Matching, ” Intelligent Transport Systems., Vol. 3, No. 1, pp. 10-18, 2009.
[13] K. Jung, K. I. Kim, and A. K. Jain, “ Text Information Extraction in Images and Video: A Survey, ” Pattern Recognition, Vol. 37, No. 5, pp. 977-997, 2004.
[14] M. Anthimopoulos, B. Gatos, and I. Pratikakis, “ A Two-Stage Scheme for Text Detection in Video Images, ” Image and Vision Computing, Vol. 28, No. 9, pp. 1413-1426, 2010.
[15] S. H. Lee, M. S. Cho, K. Jung, and J. H. Kim, “ Scene Text Extraction with Edge Constraint and Text Collinearity, ” Proceedings of International Conference on Pattern Recognition, pp. 3983-3986, 2010.
[16] Y. Zhong, K. Karu, and A. K. Jain, “ Locating text in complex color images, ” Pattern Recognition Vol. 28, No. 10, pp. 1523 – 1535, 1995.
[17] Q. Laiyun, W. Weiqiang, and G. Wen, “ Automatic Text Extraction and Recognition for Video Indexing and Retrieval, ” National Natural Science Foundation of China under Grant No. 69789301, 2002.
[18] W. Bjorn and B. Lorenzo, “ Morphological Attribute Profiles for the Analysis of Very High Resolution Images, ” IEEE Transactions on Geoscience and Remote Sensing, Vol. 48, No. 10, pp. 3747-3762, 2010.
[19] H. Lifeng, C. Yuyan, and S. Kenji, “ Two Efficient Label-Equivalence-Based Connected-Component Labeling Algorithms for 3-D Binary Images, ” IEEE Transactions on Image Processing, Vol. 20, No. 8, pp. 2122-2134, 2011.