The study and implementation of interest points detection for engineering drawing images

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ABSTRACT

With the progress of Computer Sciences, the digital processing of illustrated engineering drawing has been the trend in business community. A prototype for Point of Interest (POI) detection in engineering drawing image will be brought up in this thesis. Using Harris Corners Detector structure to find the corners in process Engineering Drawing images, and then marks in each found POI. In this thesis, the pre-procedures are Threshold, Rotation, edge detection, Dilation and Erosion from Morphology filed. The thesis presents the analysis of the result of image corner detection with pre-procedure and without pre-procedure, and comparing the result of edge detection with the result of no edge detection. The research of the thesis will apply in business using.

Keywords: Harris Corners Detector   Threshold   Dilation   Erosion   Rotation   Edge Detection

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REFERENCES

[1]Ety Navon, Ofer Miller, Amir Averbuch, " Color Image Segmentation Based on Adaptive Local Thresholds" , Image and Vision Computing 23, 2005, pp.69-85.

[2]Lawrence O'Gorman, " Binarization and Multithresholding of Document Images Using Connectivity" , CVGIP: Graphical Models and Image Processing Vol.56,No.6,November,1994, pp.494-506.

[3]E. Vincent and R. Laganiere, " Matching feature points in stereo   pairs:A comparative study of some matching strategies," Machine Graphics & Vision, vol. 10, 2001, pp. 237-259.

[4]P. Maragos, " A representation theory for morphological image and signal processing," IEEE Trans. Pattern Anal. Machine Intell., vol. 11, no. 6, 1989,pp. 586-599.

[5]Dougherty, E.R., Giardina, C.R., " Closed-form representation of convolution, dilation, and erosion in the context of image algebra" Computer Vision and Pattern Recognition. Proceedings CVPR '88, 1988,pp. 754-759.

[6]F. Mokhtarian , R. Suomela ," Robust Image Corner Detection Through Curvature Scale Space" IEEE Transactions on Pattern Analysis and Machine Intelligence ,vol 20 ,1998,pp. 1376-1381.

[7]Leduc, J.-P.,Corbett, J.R. and Wickerhauser, M.V., " Rotational wavelet transforms for motion analysis, estimation and tracking " , Image Processing. 1998. ICIP 98. Proceedings. 1998 International Conference on, vol.2,1998, pp. 195-199.

[8]Mingqi Kong. Leduc, J.-P., Ghosh, B.K., Corbett, J.,Wickerhauser, V.M., " Wavelet based analysis of rotational motion in digital image sequences" Speech and Signal Processing.vol 5,1998, pp.2777-2780.

[9]Canny John, et al., " A Computational Approach to Edge Detection" .IEEETransactions on Pattern Analysis and Machine intelligence, Vol. PAMI-8,No.6,November,1986.

[10]J. Sauvola, M. Pietikainen, " Adaptive Document Image Binarization" , Pattern Recognition 33, 2000, pp. 225-236.

[11]H.P. MORAVEC, " Towards Automatic Visual Obstacle Avoidance," Proc Int. Joint Conf Artifical Intelligence Cambridge, MA, USA, 1977,pp584.

[12]C. Harris and M.J. Stephens. " A combined corner and edge detector" Alvey Vision Conference,1988, pp. 147– 152.

[13]H. Moravec. " Obstacle avoidance and navigation in the real world by a seeingrobot rover. " Technical Report CMU-RI-TR-3, Carnegie-Mellon University,Robotics Institute, 1980.

[14]S. Ando, " Image Field Categorization and Edge/Corner Detection from Gradient Covariance," IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 22, No. 2, 2000,pp.179-190.

[15]R. P. Wurtz and T. Lourns, " Corner Detection in Color Images through a Multiscale Combination of End-stopped Cortical Cells," Image