DEPARTMENT OF COMPUTER SCIENCE

MPhil Degree Oral Presentation

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Time:	29 September 2008 (Monday) 1:30 pm – 3:30 pm (35 mins presentation and 15 mins Q & A)
Venue:	FSC 1111, Fong Shu Chuen Library, HSH Campus

"Image Segmentation based on the Statistical and Contour Information"

Abstract

Image segmentation is one of the most significant research topics in pattern recognition, computer vision and image processing. Three methods are developed to segment different images.

An improved threshold approach based on the maximal variance method is presented in this thesis. An improved genetic algorithm is used to evaluate the searching course to find the optimum. In this new method, the weakness of the traditional genetic algorithm on the aspects of the global searching and converging rate can both be surmounted.

Urinary sediments are very important to help doctor diagnose the diseases. In this thesis, we focus on the problem of edge segmentation of white and red blood cells in urinary sediments images. After the particles from the images are located, the contour reconstruction of the particle and the global-local maximum method are used to obtain the detail of the edges of the cells. The proposed new method can segment the urinary sediment images effectively and the problem of the over-segmentation is solved.

Last, we aim at reducing the segmentation error for multiple-touching and overlapping part of the merged digits. First, the contour and component analysis is used to pre-segment the merged numerals. Then, based on the contour features we proposed a searching method to find the segmentation path and apply an energy model to confirm the segmentation path. This work receives a more natural shape separated digits and higher segment correct rate than other method.

*** ALL INTERESTED ARE WELCOME***