ME 5405 Machine Vision

Assignment

Computing Project

You are required to form a group of 2-3 students to work on the computing project. The software must be developed using MATLAB or its open source alternatives such as Octave, Scilab or FreeMat. Your report should include the followings:

1. an introduction to the problem,
2. a description of your algorithm and flow chart,
3. screen dumps of every stage of the image processing,
4. an explanation on why you choose the method employed in your project, and
5. a conclusion including comments on how processing the two images are similar and/or different.

Images 1 is a 64x64, 32 level images. The image is shown a coded array that contains an alphanumeric character for each pixel in the image. The range of these characters is 0-9 and A-V, which corresponds to 32 gray levels. Image 2 is a BMP image of a label on a microchip.

Image 1: Available on IVLE-ME5405-Files-Lecture Notes – charact1.txt
Image 2: Available on IVLE-ME5405-Files-Lecture Notes – charact2.bmp

For each image,

1. Display the original image on screen.
2. Threshold the image and convert it into a binary image.
3. Determine the outline(s).
4. Segment the image to separate and identify the different characters.
5. Rotation of the characters about their own respective centroids by 90 degrees clockwise.
6. Rotation of the characters about their own respective centroids by 30 degrees counterclockwise.
7. Determine a one-pixel thin image of the characters from Step 4.
8. Scale and display the characters of Image 1 in one line with the sequence: **A1B2C3**.
9. Scale and display the characters of Image 2 in one line with the sequence: **7M2HD44780A00**.

You should upload your report and software to IVLE-ME5405-Files-Student Submission by 21 November 2017 (Tuesday) which is about one week before ME5405 final examination.

Image 1

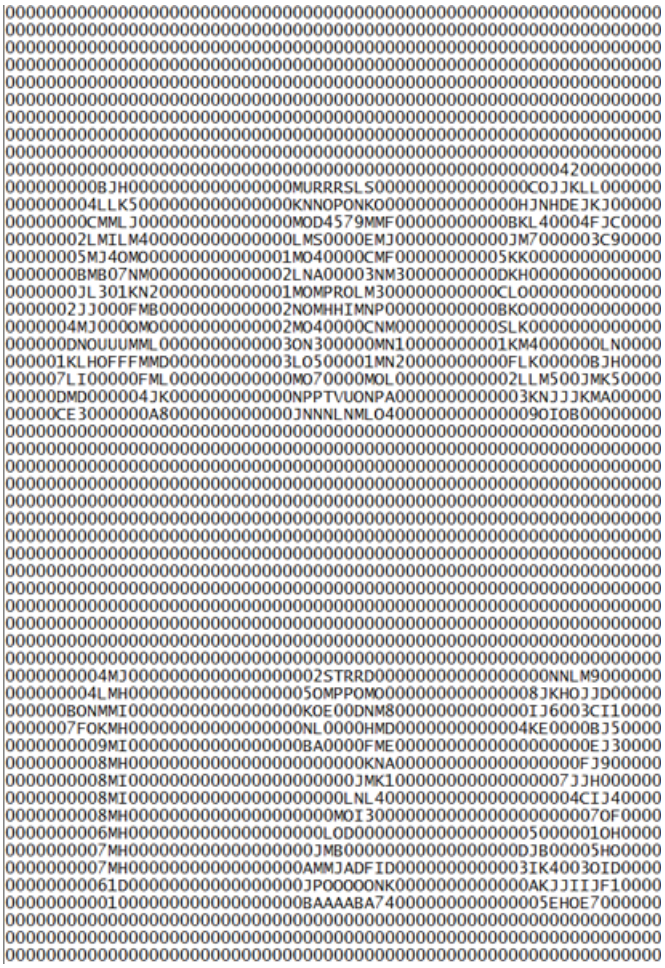

Image 2