**Assignment One**

1. Implement the zig-zag encoding procedure for a rectangular matrix.
2. Prove for two symbols a and b, if p(a) >= p(b), then according to Huffman encoding algorithm, the resultant code length L(a) <= L(b).
3. Implement two different versions of the adaptive Otsu’s thresholding algorithm, i.e., with or without overlapping local matrices, then compare the performances of these two algorithms.
4. Take some pictures of at least two coins from different background, and come up with a program to identify these coins in a robust manner.

Note:

1. This is an individual assignment, you should be the sole author of all the codes; use of any code from the Internet is viewed as cheating.
2. Deadline is Mar. 30, 11:59pm by email
3. Submit source code, screen shot of sample running results of all four programs.