NEW YORK INSTITUTE OF TECHNOLOGY
School of Engineering and Computing Sciences
Computer Science
CSCI 860: Biometrics and its Applications (Spring 2018)

Programming Assignment 1
Total Points: 100
Due: April 17, 2018 (on or before 11:59pm)

You are required to implement Manhattan verifier and report **false accept (impostor pass) and false reject rates** on a publicly available keystroke biometric dataset. You may use any programming language, as long as it can be compiled.
In addition, I will ask you to demonstrate and explain your programs.

Dataset: The data consist of keystroke-timing information from 51 subjects (typists), each typing a password (`.tie5Roanl`) 400 times. (http://www.cs.cmu.edu/~keystroke/)

Verification Task: For each user, (**a**) compute the template using mean *key hold* and *key interval* features calculated on the first N typing samples; (**b**) compute the genuine and impostor scores using Manhattan distance; and (**c**) calculate and report false accept (impostor pass) and false reject rates at a given threshold T.

Program Input: (1) N is the number of samples to be used for building the template (e.g., if $N = 200$, use the first 200 samples of each user to compute the average vector and the remaining 200 for testing; if $N = 100$, use the first 100 samples for the template and the remaining 300 for testing); and (2) T is the verification threshold.
Program Output: Clearly display false accept (impostor pass) and false reject rates at a given threshold T.

Deliverables:

1. Well documented, compilable software codes and executables performing template calculation; genuine and impostor score computation with Manhattan distance; and calculation of false accept and false reject rates at a given threshold T. [**40 points**]
2. A *well-written report* containing false accept and false reject rates for $N = 200$ and various threshold values (choose five threshold values that give you the best tradeoff between the false accept and false reject rates). [**40 points**]
3. Report the false accept rate at 0 false reject rate, when $N = 100$, 200, and 300 [**20 points**]

Submission: The assignment is due **April 17, 2018, on or before 11:59PM midnight**. Email a zipped file attachment containing the following: 1) ".exe" or ".jar" files of your

programs; 2) source code; 3) a “Readme.txt” file containing clear, step-by-step instructions of how to run your programs (including installation of any special software/compilers used); and 4) a PDF copy of the report. Email address: kbalagan@nyit.edu (don’t forget to CC: dchhab02@nyit.edu).