**Manual for using Multi-Layer OS-ELM in Matlab**

**OS-ELM**

To run OS-ELM code, use the following command in the matlab console

[TrainingTime, TestingTime, TrainingAccuracy, TestingAccuracy] = OSELM\_UMIST(0, 0, 1, 5000, 'sig', 150, 50)

where

OSELM\_UMIST.m is the OS-ELM script for UMIST dataset

keep the first three options to '0,0,1'

'5000' is the number of hidden neurons

'sig' is the sigmoid activation function

'150' is the initialization set and '50' is the chunk size

**ML-OSELM**

To run ML-OSELM code, use the following command in the matlab console

[TrainingTime, TestingTime, TrainingAccuracy, TestingAccuracy] = MELM\_UMISTseq(0, 1, 3, [3000,5000], [0,0,0],0.05, [0.7,1], [0.8,0.9])

where

MELM\_UMISTseq.m is the ML-OS-ELM script for UMIST dataset

keep the first 2 options to '0,1'

'3' means three hidden kayers

'3000' and '5000' are the number of hidden neurons in first and last hidden layer. Second hidden layer is set to '4000' in the code

Keep rest of the options as it is

To change the initilazation set size, modify 'N0' in the script. To change chunk size, modify 'Block' in the script. Default values are N0=150 and Block=50