

# IT 542: Pattern Recognition and Machine Learning

## Assignment 1

(1) Draw 100 samples from uni-variate Normal distribution, plot its histogram. Compute pdf for uni-variate normal distribution and compare it with histogram. Repeat experiment with 500, 1000 data points.

(2) Draw 100 samples from bi-variate Normal distribution. Repeat experiment 1.

(3) Do following

1. Implement central limit theorem.
2. Draw 12 samples from  $\text{Uni}[0,1]$  as a sample population and perform CLT. Observe the

distribution of sample means.

(4) Use Box-Muller method to achieve Normal distribution.