Helwan University
Faculty of Computers and Information

Project Guidelines

Department of Computer Science
Pattern Recognition
Spring 2011

General Rules

- Every group presents their project in less than 10 min. (3 marks)
- Every group has to submit a written report (focus on writing scholarly not on decorating the document). (3 marks)
- The remaining 14 marks will be given on the work itself, i.e., analysis, simulation, and results.

Proposals

1. Understanding the work of Hinton and Salakhutdinov (2006) and their Matlab code, then reproducing their results on the MNIST dataset. Most importantly, apply this method to a dataset extracted from medical images. This dataset will be handed out upon request.
2. Classifying hand-written digits in MNIST dataset using KNN and NN to reproduce the results on the MNIST's webpage. Then, most importantly, apply Random Forest using different tuning parameters and compare to other results.

Hint: Every group has to register with the TA and take a project number from above.

References

Hinton, G. E. and Salakhutdinov, R. R. (2006), "Reducing the dimensionality of data with neural networks," *Science*, 313, 504–507, times Cited: 187.