Cognitive Algorithms - Assignment 2

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## Task 1:

How many images does the data set contain? Of how many pixels does each image consist of?

* The data set contains 2007 digits, and each image consists of 256 (16x16) pixels.

## Task 2:

Does the accuracy converge?

* The accuracy has the tendency to converge; however, often settles for a local optimum.

## Task 5:

Call the function several times: which algorithm (Nearest Centroid Classifier or Perceptron) would you prefer for this task?

* The Perceptron algorithm, as it achieves a higher classification accuracy than the nearest centroid classifier.

## Task 6:

Is this enough to reach a final conclusion on which algorithms performs good on this type of data?

* Because the algorithms have been trained and tested on the same data set, even a small change in the task setup, e.g. addition of colors, or different alphabet of the handwritten digits, could have an impact on the performance of these algorithms. The overall accuracy of each model depends on the linear separability of the data set and the compared accuracies are influenced by the reaction of the algorithms to a variation in the data, e.g. outliers. Therefore, even though the data set for a handwritten digit classification contains representative class samples, it is not enough to reach a final conclusion on which algorithm performs better than the other, as well as, to reach a final conclusion on which one performs well.

## PLOTS





