**Project Proposal**

Luuk Arts, s4396863  
Tristan de Boer, s1007313

**Algorithm:**

The algorithm we will be implementing is an Artificial Neural Network (ANN).

We will first implement this ANN with 1 input layer and 1 output layer. Afterwards, we will experiment with different numbers of layers to see if that improves our results.

The purpose of our implementation will be the classification of images.

**Data:**

The data we use to train and test our Neural Network is the MNIST handwritten digit dataset (http://yann.lecun.com/exdb/mnist/ ). This data consists of a collection of black and white images of the digits 0-9 with a size of 28x28 pixel. We will normalize this data to values between 0 and 1 so we can easily use it in our neural network.

**Literature:**

[1] LeCun, Y., Bottou, L., Bengio, Y., & Haffner, P. (1998). Gradient-based learning applied to document recognition. *Proceedings of the IEEE*, *86*(11), 2278-2324. <http://yann.lecun.com/exdb/publis/pdf/lecun-98.pdf>

[2] Bishop, C. M. (2006). *Pattern recognition and machine learning*. springer.