



ADAPTIVE COMPUTATION AND MACHINE LEARNING (COMS4030A/COMS7047A)

Assignment II

Submission due date: 21st May, 2021, 17:00

May 6, 2021

1 Description

Assignment II will consist of a programming exercise on the topic: Neural Networks. Tasks include implementing a neural network from first principles and exploring use of different activation functions and different network architectures. You are free to use a dataset of your choice for training, validation and testing.

1.1 Submissions:

1. jupyter python notebook containing your neural network implementation along with other components
2. your sample dataset

Submission link will be posted on Ulwazi.

1.2 Grading:

Grading for implementation will be based on the following exercises:

1. Basic implementation of neural network trained using backpropagation and gradient descent (20 points)
2. Exploring the effect of different activation functions (eg. linear, sigmoid, tanh and ReLU) (10 points)
3. Exploring the effect of network size on generalizability (eg. number of hidden layers, number of hidden neurons) (10 points)
4. Effective use of data visualization and analysis of the results to understand the working of algorithm and other steps (10 points)