

Task 1

Using the neural network simulator available here:

<https://playground.tensorflow.org/#activation=tanh&batchSize=10&dataset=spiral®Dase&t=regplane&learningRate=0.03®ularizationRate=0&noise=0&networkShape=4,2&seed=0.8843&showTestData=false&discretize=false&percTrainData=50&x=true&y=true&xTimesY=false&xSquared=false&ySquared=false&cosX=false&sinX=false&cosY=false&sinY=false&collectStats=false&problem=classification&initZero=false&hideText=false> For the following

input data settings:



The screenshot shows the 'DATA' settings panel in the TensorFlow Playground. It asks 'Which dataset do you want to use?' and shows four icons: a 2D sine wave, a 2D spiral, a 2D scatter plot, and a 2D spiral with a black border. The 'spiral' dataset is selected. Below this, there are three sliders: 'Ratio of training to test data: 50%', 'Noise: 10', and 'Batch size: 7'.

Choose appropriate parameters:

1. Features
2. number of hidden layers
3. Number of neurons in each layer
4. Activation function to achieve test loss value below 0,04.

You should minimize:

1. the number of inputs
2. the number layers
3. the number of neuron in each layer

Prepare the report which contains at least:

1. the parameters of the resultant neural network
 - 1.1. Features

- 1.2. number of hidden layers
- 1.3. Number of neurons in each layer
- 1.4. Activation function justification of the choice of the parameters
- 1.5. your conclusions concerning the neural network design
- 1.6. Learning rate
- 1.7. Regularization type
- 1.8. Regularization rate
- 1.9. Test loss value
- 1.10. Training loss value
- 1.11. Output image
- 1.12. Print screen of the neural network

