

Mid Evaluation Report

Team Number: 20 | Team Name: Story of SMAI Life | Project: Lenet

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Github Link: <https://github.com/inesane/Lenet>

Paper Link: http://vision.stanford.edu/cs598_spring07/papers/Lecun98.pdf

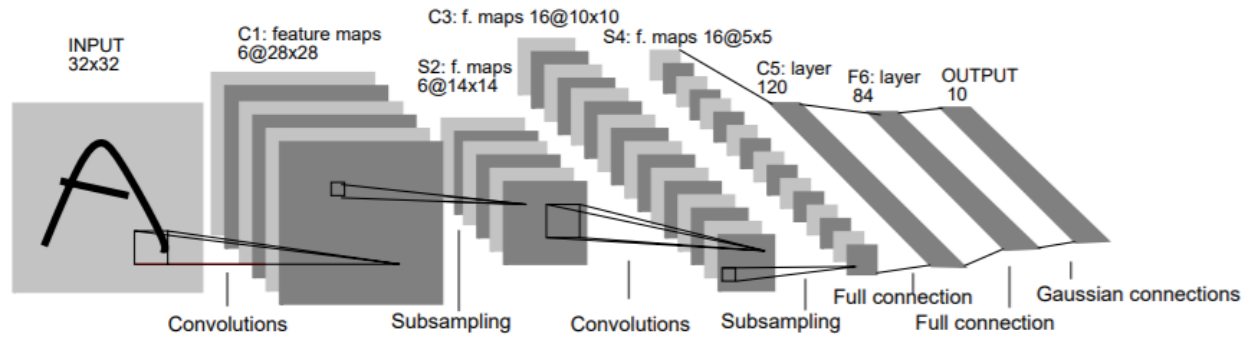
Project Summary

Lenet is a CNN-based character recognition system that takes a 32x32 resolution image and outputs the classification. It has three convolutional layers and two fully connected layers. The activation function used for all layers (excluding the last one) is tanh, and for the last layer softmax was used. Average pooling is used between layers to decrease image resolution till we reach a 120-neuron fully connected layer.

For this project, we have chosen the MNIST dataset. It consists of 60,000 training set images and 10,000 test set images. Each image is of 28x28 resolution and has been padded to create 32x32 resolution images.

Lenet Architecture

Layer	# filters / neurons	Filter size	Stride	Size of feature map	Activation function
Input	-	-	-	32 X 32 X 1	
Conv 1	6	5 * 5	1	28 X 28 X 6	tanh
Avg. pooling 1		2 * 2	2	14 X 14 X 6	
Conv 2	16	5 * 5	1	10 X 10 X 16	tanh
Avg. pooling 2		2 * 2	2	5 X 5 X 16	
Conv 3	120	5 * 5	1	120	tanh
Fully Connected 1	-	-	-	84	tanh
Fully Connected 2	-	-	-	10	Softmax



Project Progress

- Completed the literature review required for the project.
- Implemented all helper functions required for the system (loader, convolution, average pooling, etc.).
- Implemented forward pass for all layers.

Work to be done (after mid evaluation):

- Loss Function
- Gradient Descent
- Backward Pass
- Training and testing