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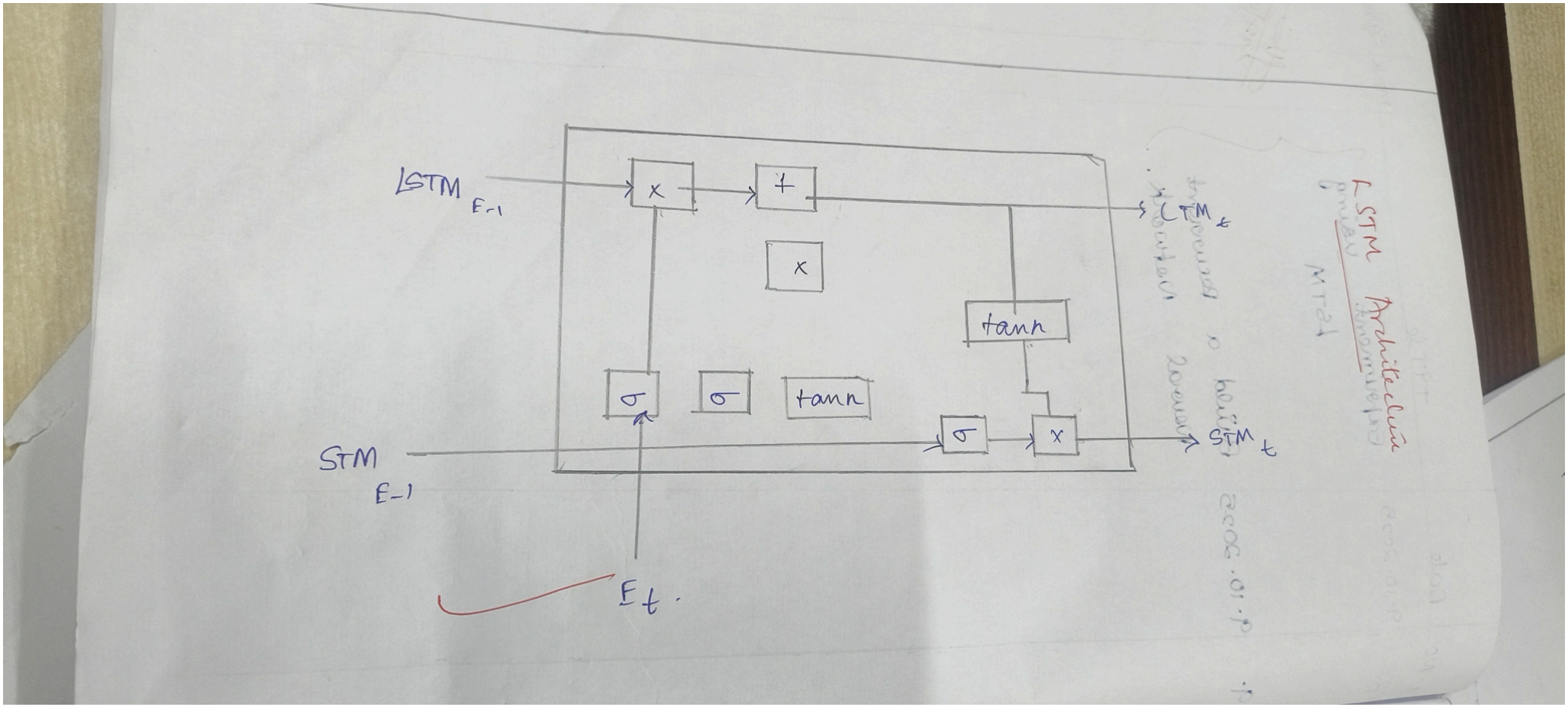
		Signature
8.	Long Short Term Memory	
9.	Building a RNN	
10.	Perform compression using MNIST dataset using autoencoder	
11.	Experiment using variations	
12.	Implement A Deep convolutional GAN	
13.	Understanding the architecture of Pre-Trained Model	
14.	Implement a Pre-trained CNN model as a Feature	
15.	Implement a YOLO model for object Detection	


LSTM t-1
x
+
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x
tann
σ
σ
tann
σ
x
STM t-1
STM t
Ft.

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8. Experiment using LSTM

Aim

To implement and analyze a long short-term memory (LSTM) neural network for predicting future values in time series dataset

Objectives :-

1. To understand the architecture and working of an LSTM network
2. To Prepare sequential data suitable for LSTM input
3. To train an LSTM model using Pytorch
4. To train and evaluate the model on time-series data
5. To visualize model Prediction versus actual target values

Pseudo code :-

1. import required libraries
2. Generate or load a sequential dataset (eg. Sine wave)
3. Normalize and prepare input output pairs for training
4. Define LSTM mode
   - Input Layer.

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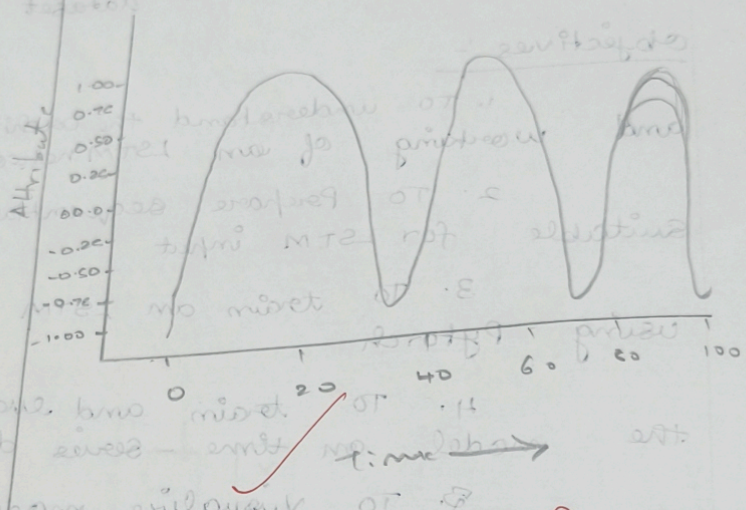

Loss, epoch - - - Result.

Epoch 1/6 Train Loss : 0.6120 Test Loss : 0.6498

Epoch 2/6 Train Loss : 0.5677 Test Loss : 0.3460

Epoch 3/6 Train Loss : 0.2993 Test Loss : 0.31

Epoch 4/6 Train Loss : 0.1969 Test Loss : 3.1

Epoch 5/6 Train Loss : 0.1360

Epoch 6/6 Train Loss : 0.0780

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- LSTM Layer
- fully connected (Output) layer

5. Define Loss function and optimize

Observation:-

* The LSTM learns temporal platefarms from sequential data

* Loss decreases gradually as training Proceeds

* Predicted sine wave closely follows the actual curve after sufficient training

Result:-

The LSTM model successfully Poredict future values in a sine wave sequence, demonstrating its ability to learn and generalize time-based dependences.