LSTM Model for Short-term Traffic Flow Prediction

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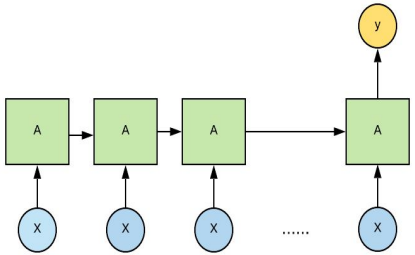
Overview

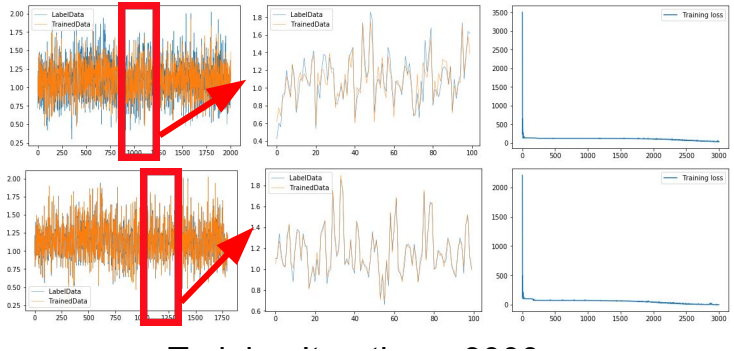
Short-term Traffic flow prediction is an essential function of traffic information systems. In this project we propose a RNN-based method to predict short-term traffic flow with history records of different lengths. To better address the problem of gradient vanishing and exploding in time-series prediction, we apply LSTM method, which keeps a reasonable balance between memorizing and forgetting, to the model with Pytorch . Eventually we got a well-fitted model with the MSE of 74.1 in training dataset and 80.68 in testing dataset.

Problem Clarification ⇒ **Model Architecture** ⇒ **Results Analysis**

Peak hour (7:00~10:00)
During weekdays in 2018
5 min interval
Sequence length: 3/6/9/12



Block A:
-LSTM
-Hidden layers: 2
-Hidden layer dimension: 32
LossFuntion: MSE
Optimizer: Adam



Seq Length	Trainingset MSE	Testingset MSE
3	112.19	124.15
6	119.52	126.84
9	74.10	80.68
12	83.84	88.31