LSTM

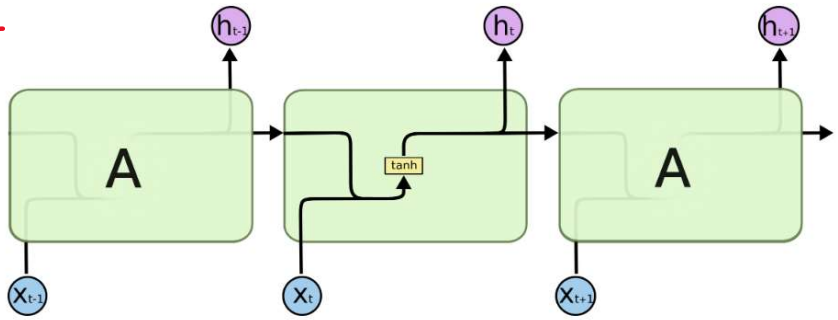
16 December 2023 20:30

Long Short Term Memory (LSTM)

Improved version of RNN (time series)

↳ temporal lobe → short term memory

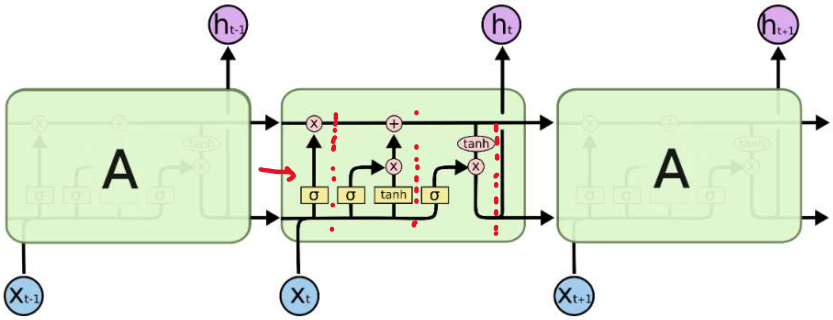
Remember information over a long time



t-1
t
t+1

Basic version of RNNs :-

Basic Version of LSTM :-

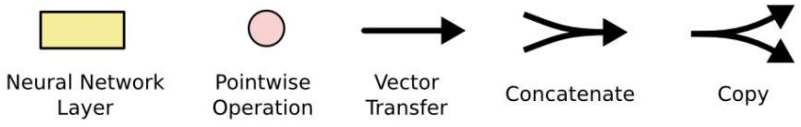


$W_{rec} < 1$

vanishing gradient problem

$W_{rec} > 1$

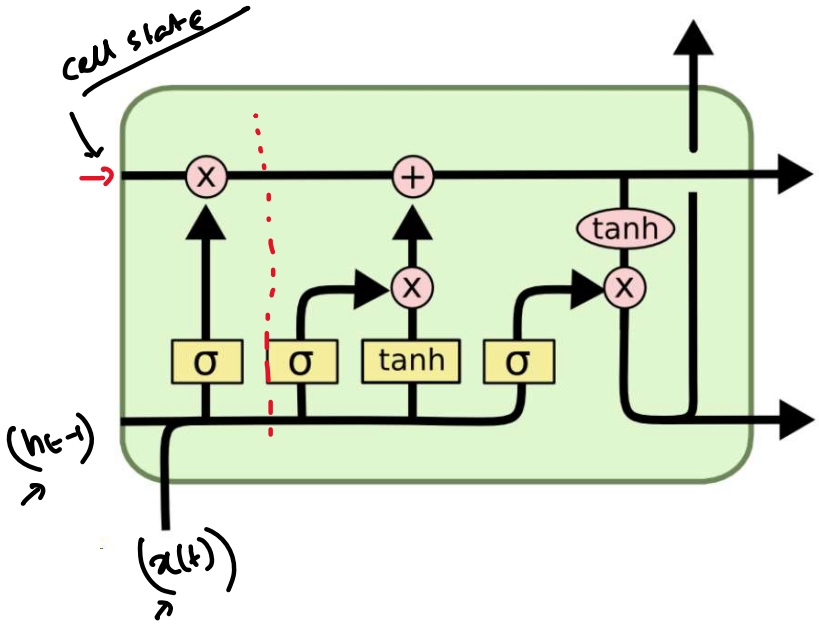
exploding gradient problem



$W_{rec} = 1$

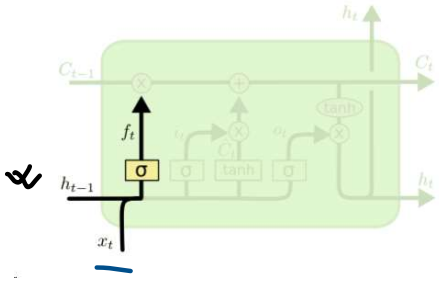
cell state

exploding gradient problem



forget gate layer

o/p either 1 or 0

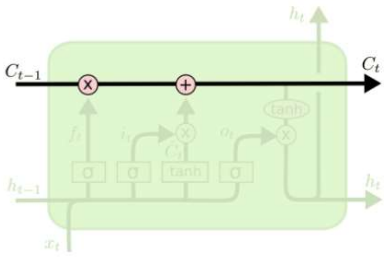


Activation fn

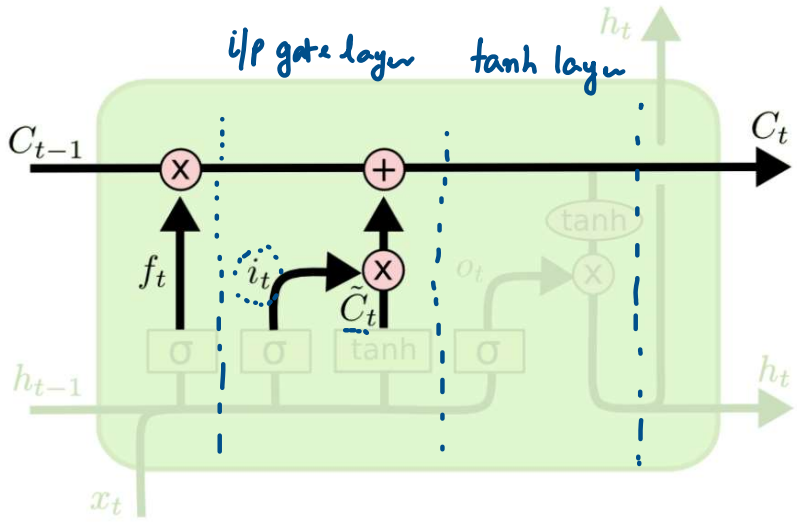
Forget gate layer

$$f_t = \sigma\left(W_f \cdot [h_{t-1}, x_t] + b_f\right)$$

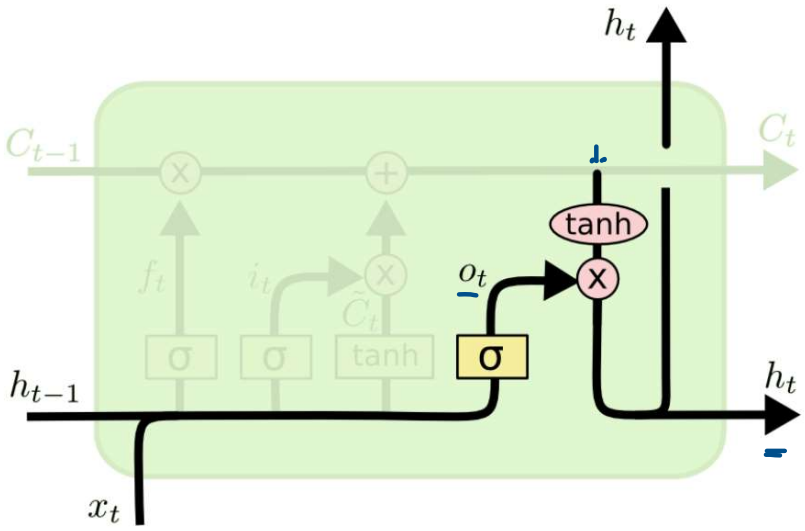
The purpose of the cell state is to decide what information to carry forward from the diff observation that a RNN is trained on



Cell State Representation



* work long ago
* update the cell state



1) forget gate layer
↳ cell state

2) I/p gate layer
3) tanh layer

{ Project 1
Project 2

* Dataset → Kaggle.com / github.com
Registered Acc
Search in google

↓

Choose your own project

* Google Colaboratory (colab.research.google.com)

(Links of project/ documents → provided in the group)

Project Report (pdf) :- 2 page

→ Introduction
→ Problem Statement
→ Results and Discussion
→ Data Visualization & explain
→ Conclusion & Future Direction
* References

How to send the project ?

① Google Colab link (x 2)
② Project Report (x 2)
③ Dataset (if any)

Email to

1) Support@internselite.com
2) akghsh.ece@gmail.com.

Deadline = 15th January, 2023