

# Natural Language Processing (NLP),

Date → 25 Oct 2023

Data Science Master 1.0 (Revision class)

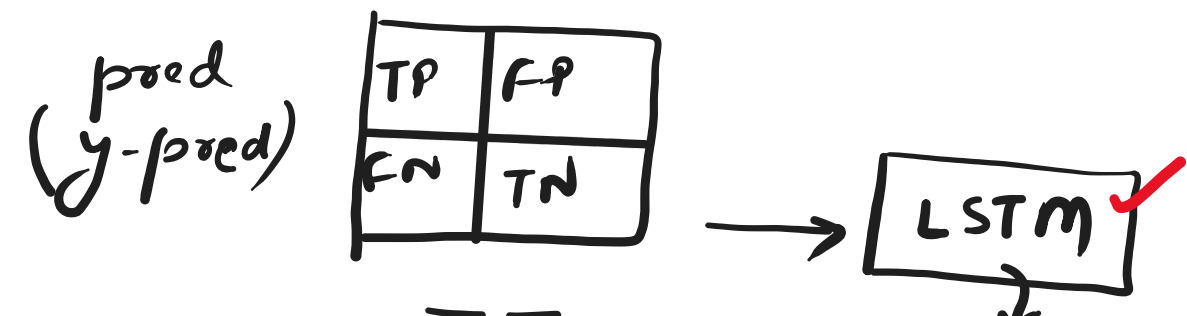
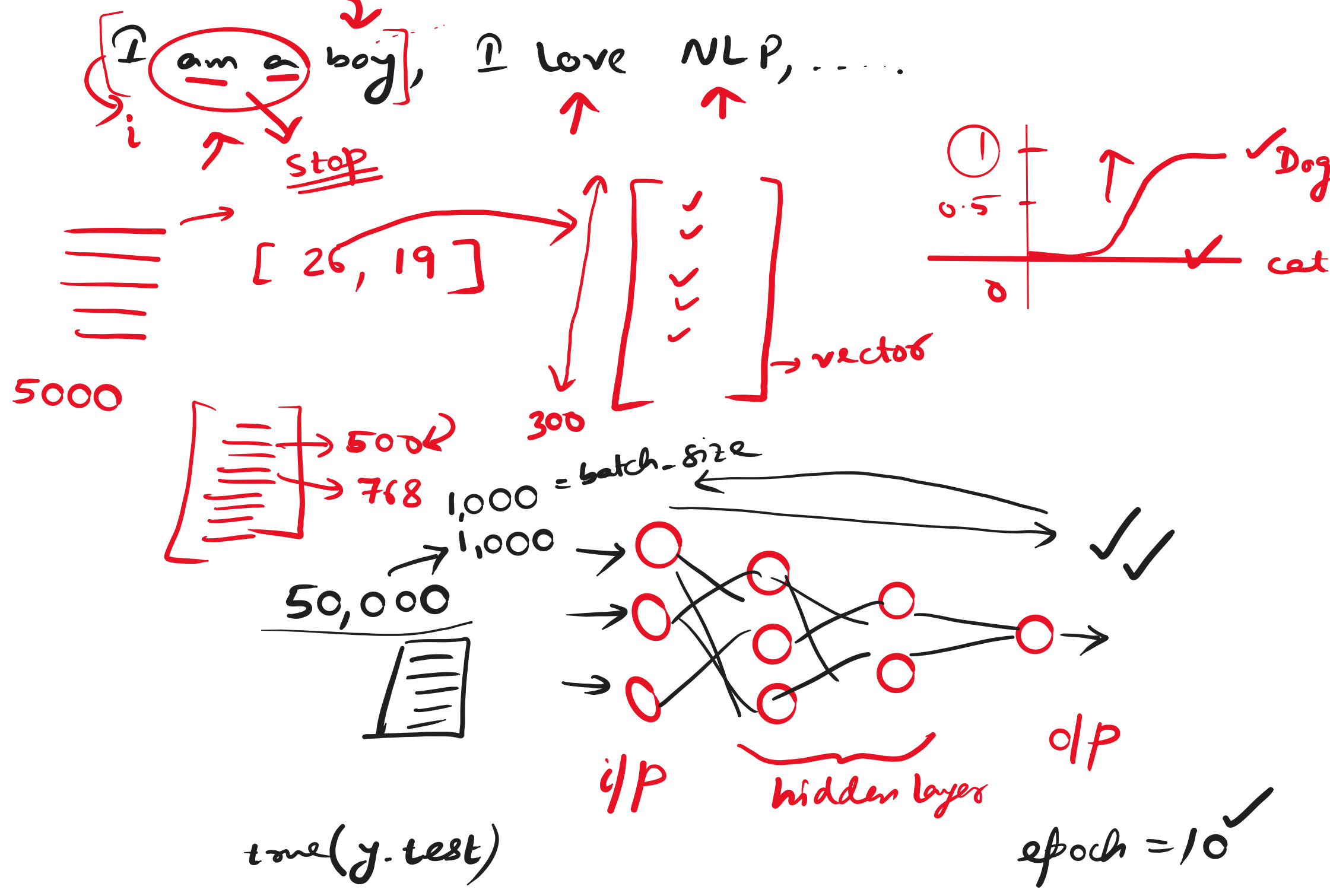
by Dr. Ajay Debnath

## Recap

- 1 RNN
- 2 Bidirectional RNN
- 3 disadvantage of RNN
- 4 LSTM
- 5 bidirectional LSTM

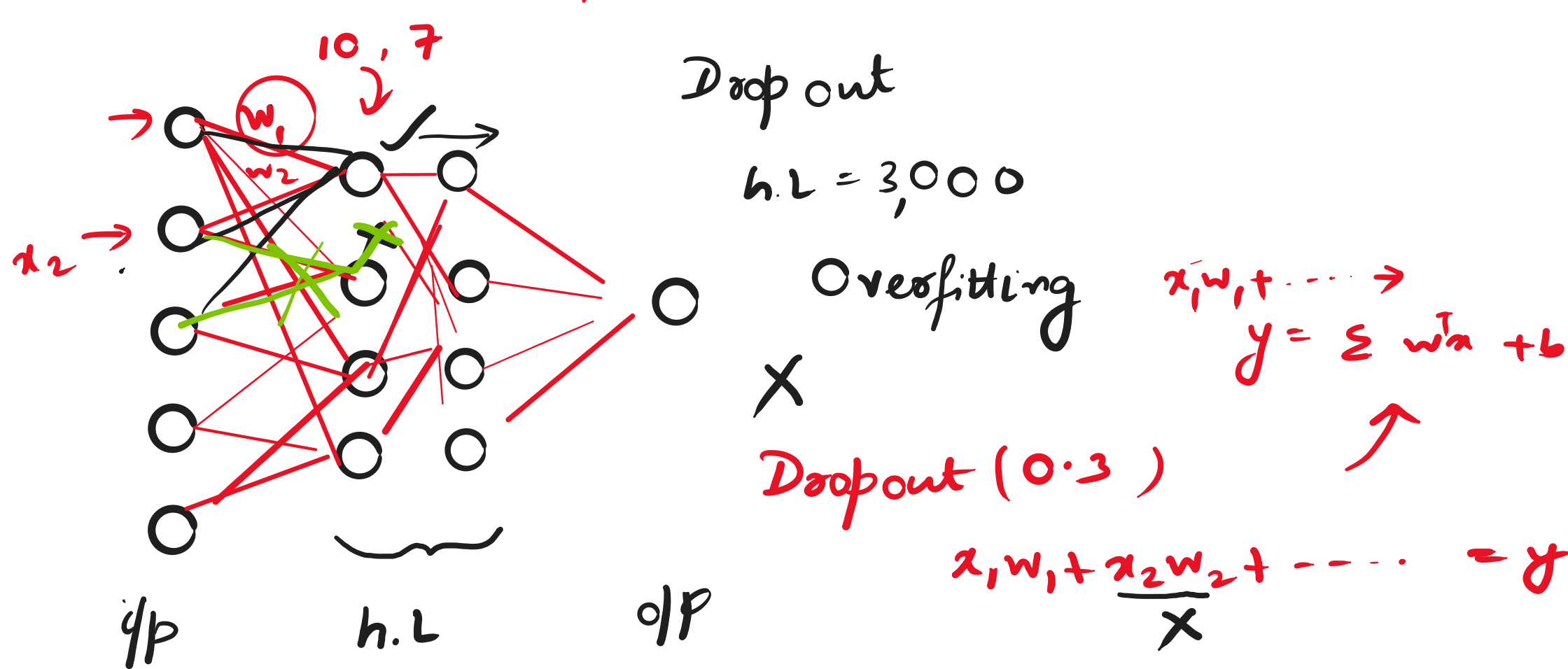
$s = \begin{bmatrix} -4 & -3 & -2 & -1 \\ A & B & C & D \end{bmatrix}$   $0, 1, 2, 3, 4, 5$   $0, \text{len}(\text{msg})$   
 $0 \ 1 \ 2 \ 3$   $0, 1, 2, \dots, \text{len}(\text{msg}) - 1$

for  $i$  in range (0, 5)



I was born in France I can speak French fluently,

$x_i, x_2 \quad x = \langle x_1, x_2, \dots, x_n \rangle$



## Sequence to Sequence (Seq2seq)

RNN, LSTM, biRNN, bi-LSTM, GRU } short coming  
 (Vanishing grad problem)  
 J.V.V imp longer

