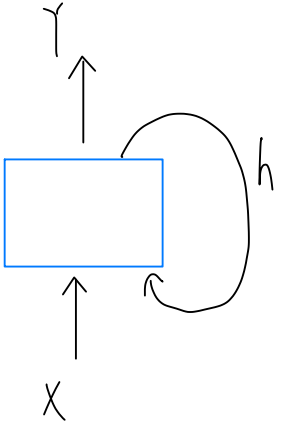
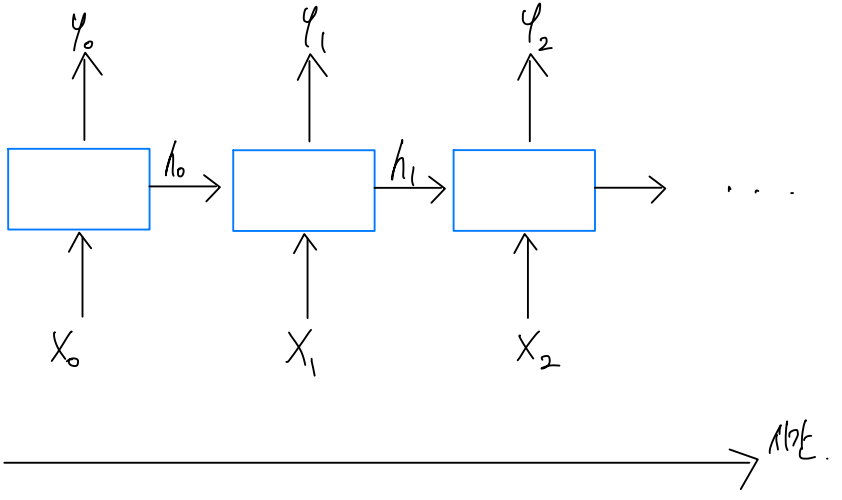
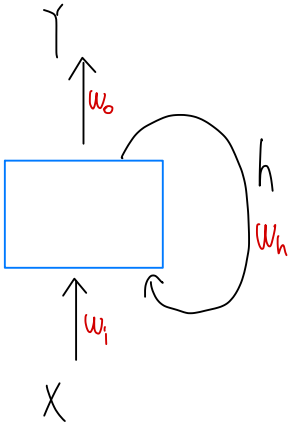
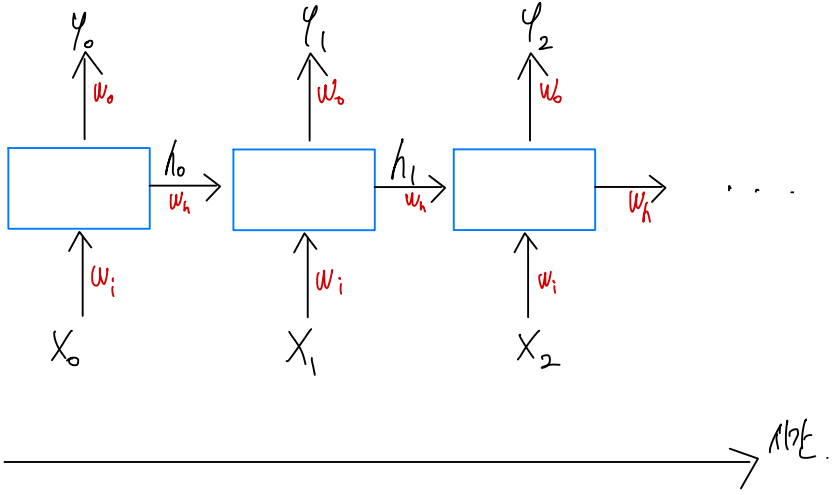
Recurrent Neural Networks. (RNN).

⇒ 시계열 데이터 분석에 유리.





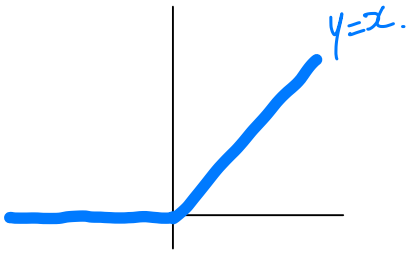


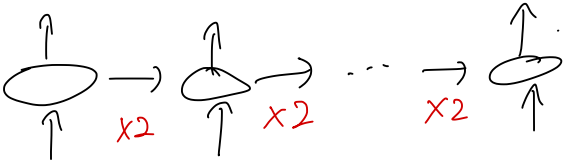


각각 cell 안에서는 w_i, w_o, w_h 공유.

If timestep = 100, $W_h = 2$?

in ReLu.





→ $\times 2^{100}$

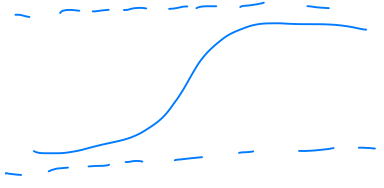
≒

"Value 폭주"

($\times (\frac{1}{2})^{100}$

"Value 소실")

⇒ 폭주하지 않게 눌러주는 활성화 함수

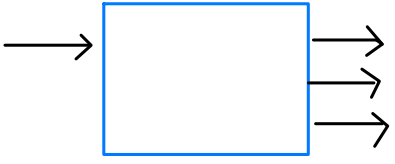


tanh 사용.

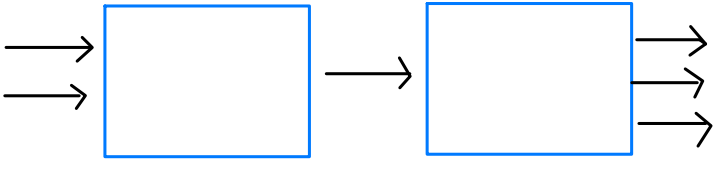
Network.

sequence to sequence

sequence to vector

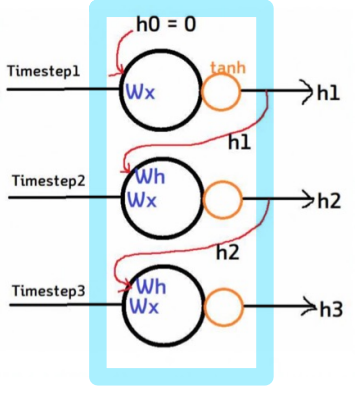


vector to sequence



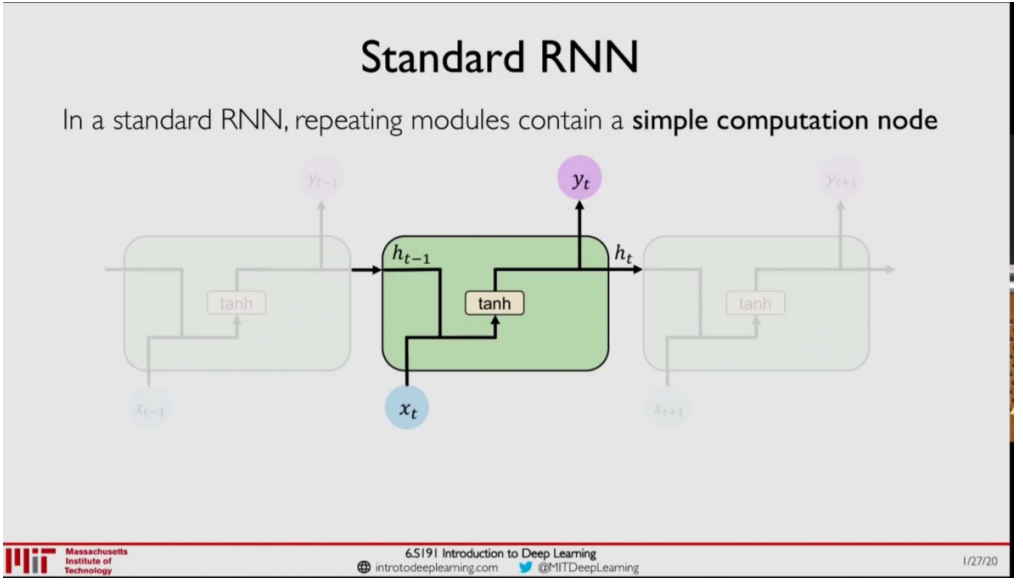
incoder - decoder.

(ex. 번역기).



LSTM. (long short-term memory).

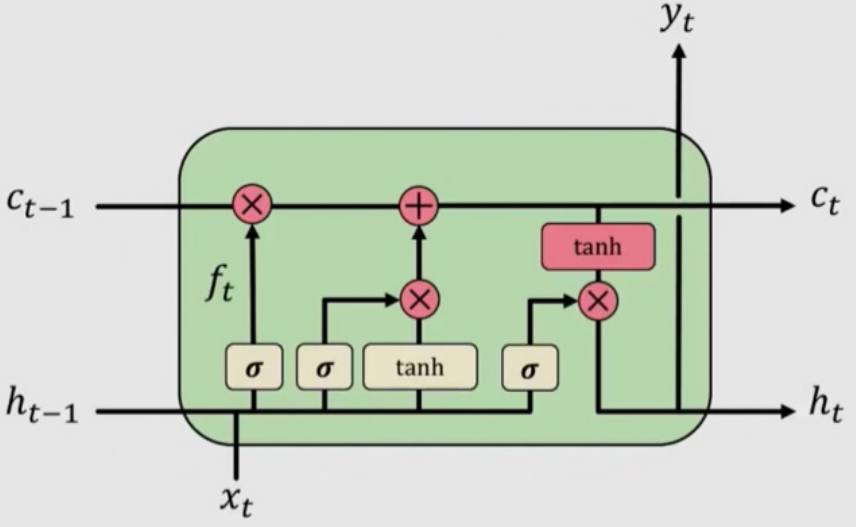
Simple RNN + long term memory



Long Short Term Memory (LSTMs)

How do LSTMs work?

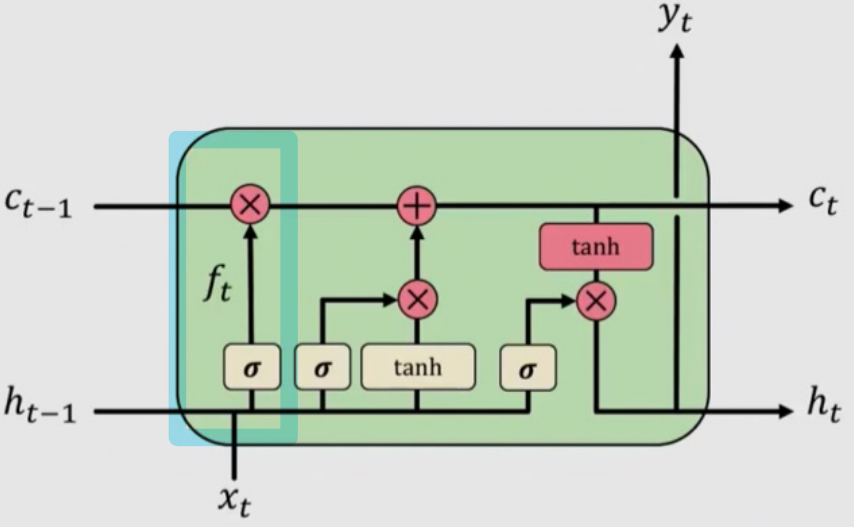
1) Forget 2) Store 3) Update 4) Output



Long Short Term Memory (LSTMs)

How do LSTMs work?

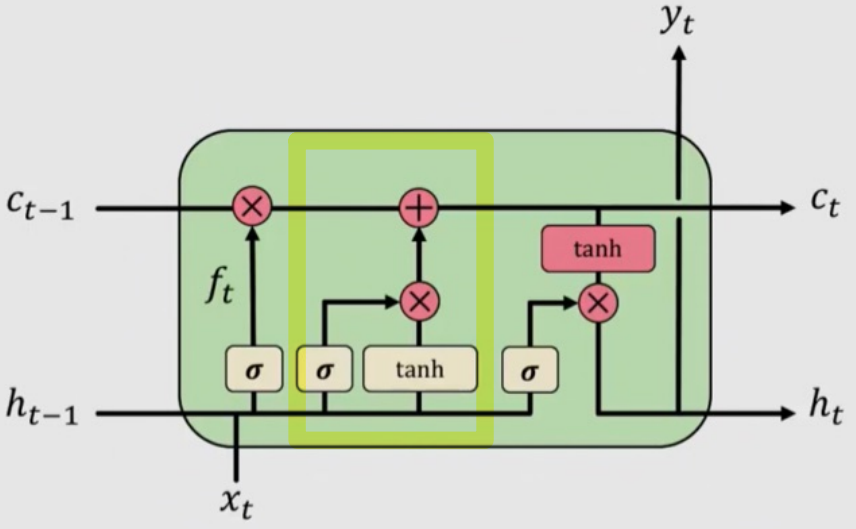
1) Forget 2) Store 3) Update 4) Output



Long Short Term Memory (LSTMs)

How do LSTMs work?

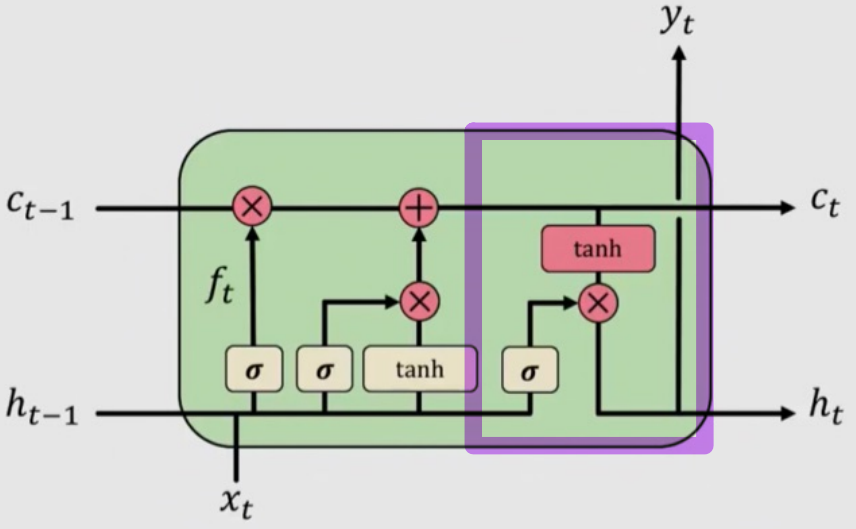
1) Forget 2) Store 3) Update 4) Output



Long Short Term Memory (LSTMs)

How do LSTMs work?

1) Forget 2) Store 3) Update 4) Output



GRU. (gated recurrent unit).

LSTM 간소화.

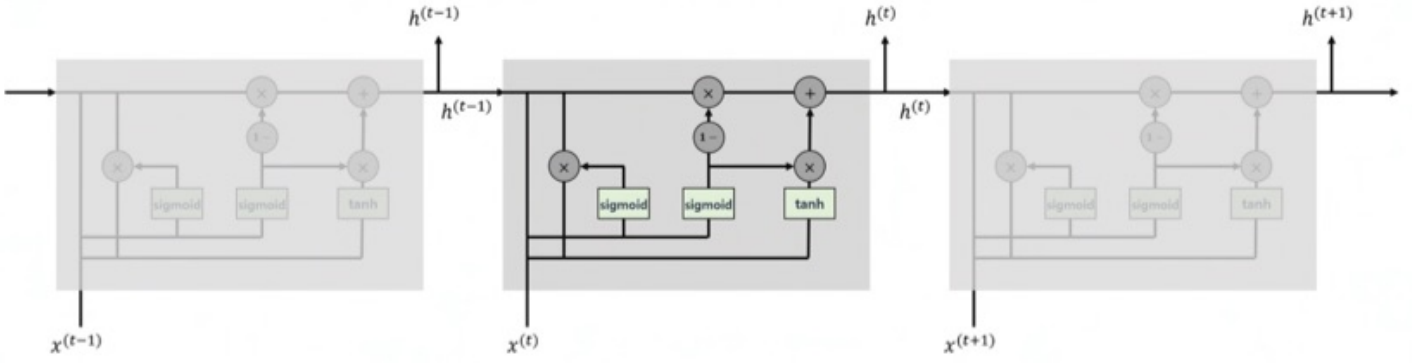


Figure 1: GRU, 개요

i) Reset

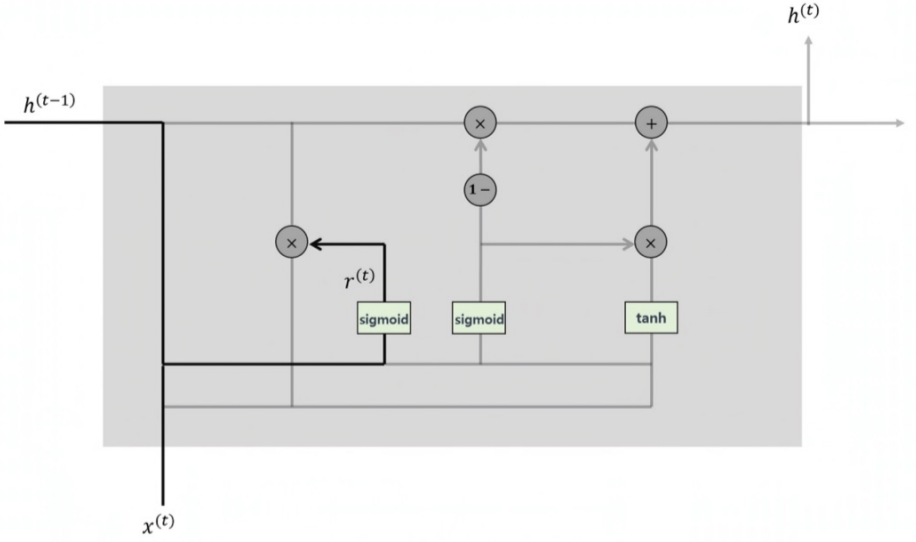


Figure 2: GRU, Reset Gate

ii) Update

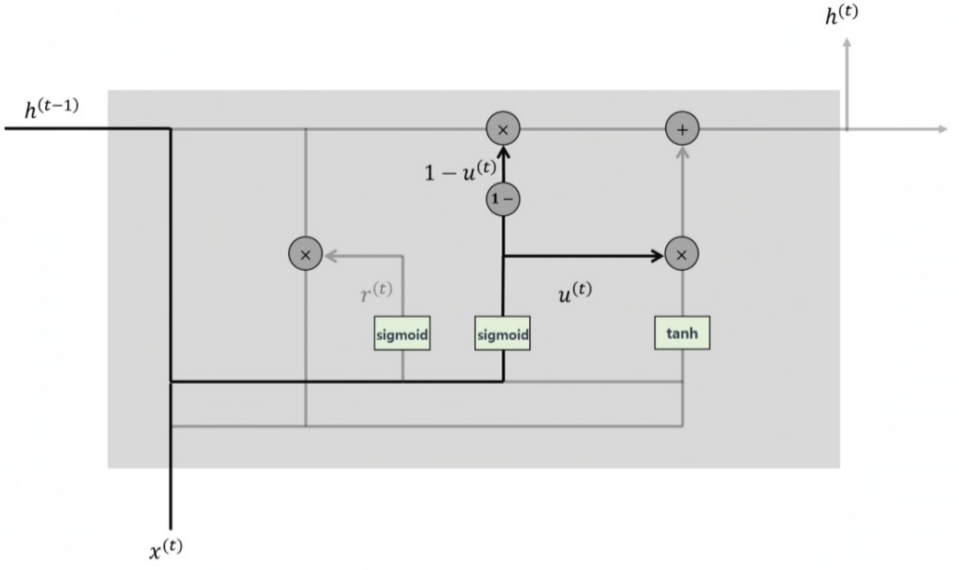
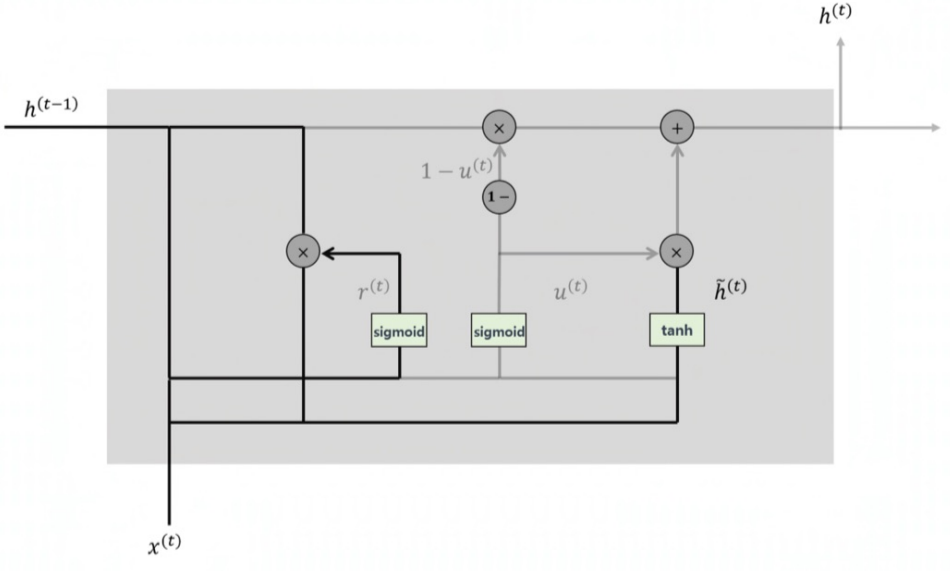


Figure 3: GRU, Update Gate

iii) Candidate



iv) output

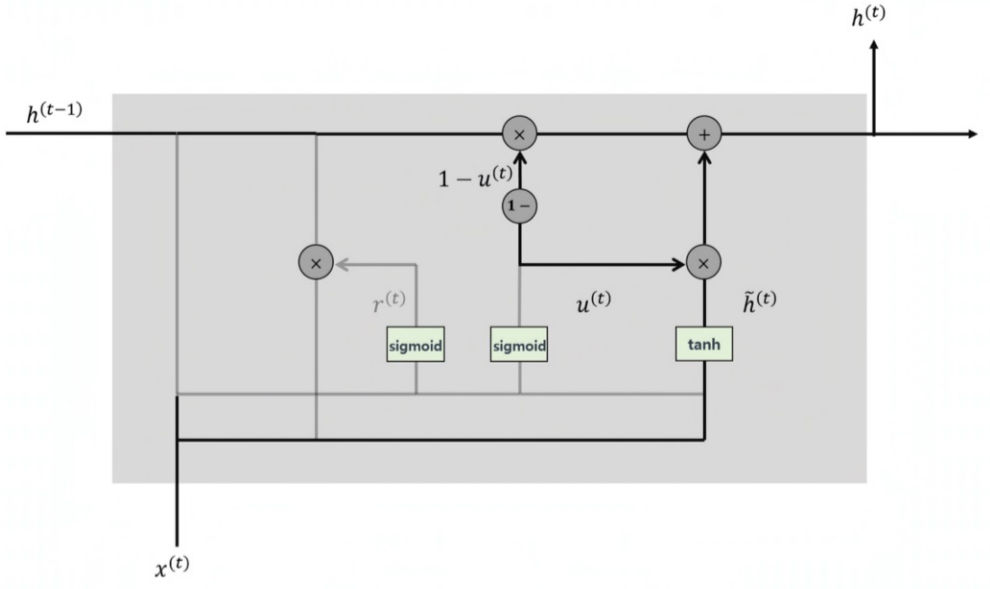
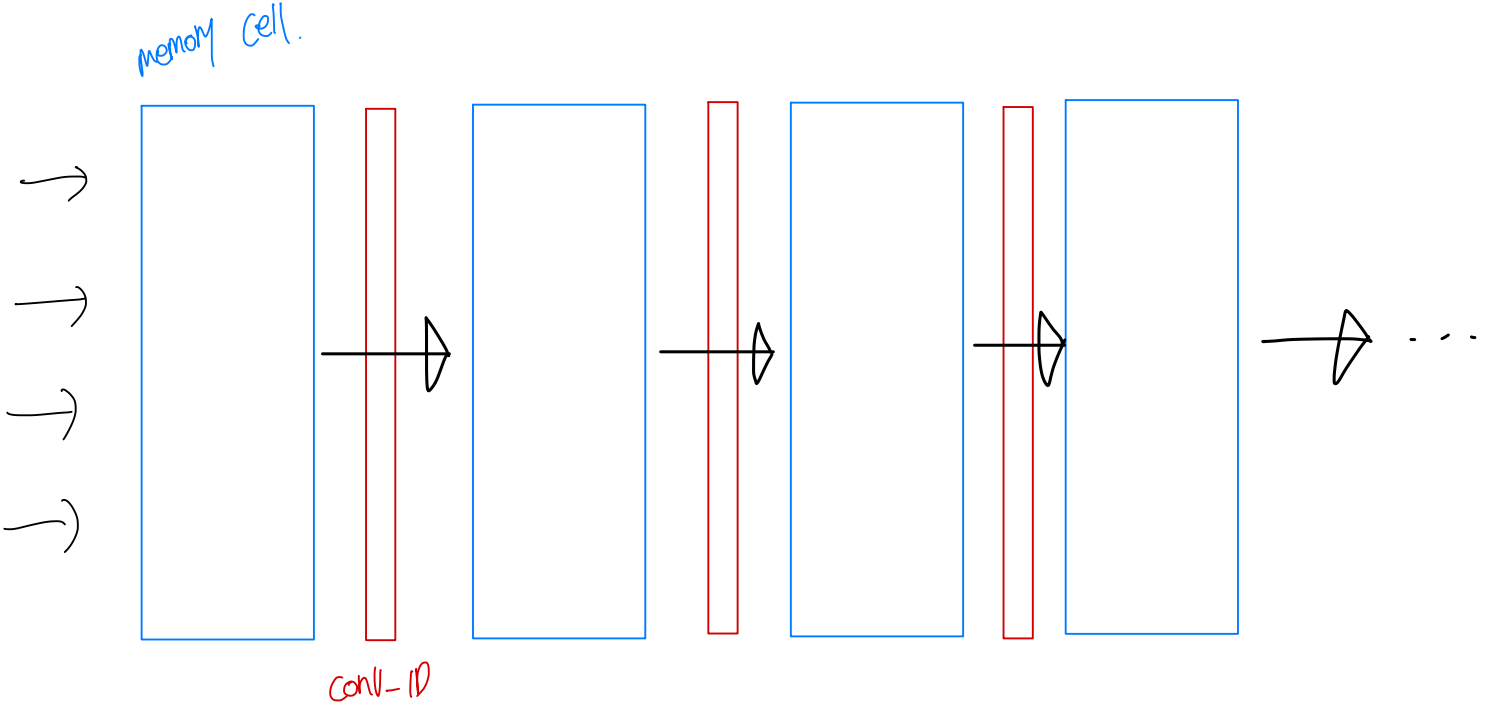


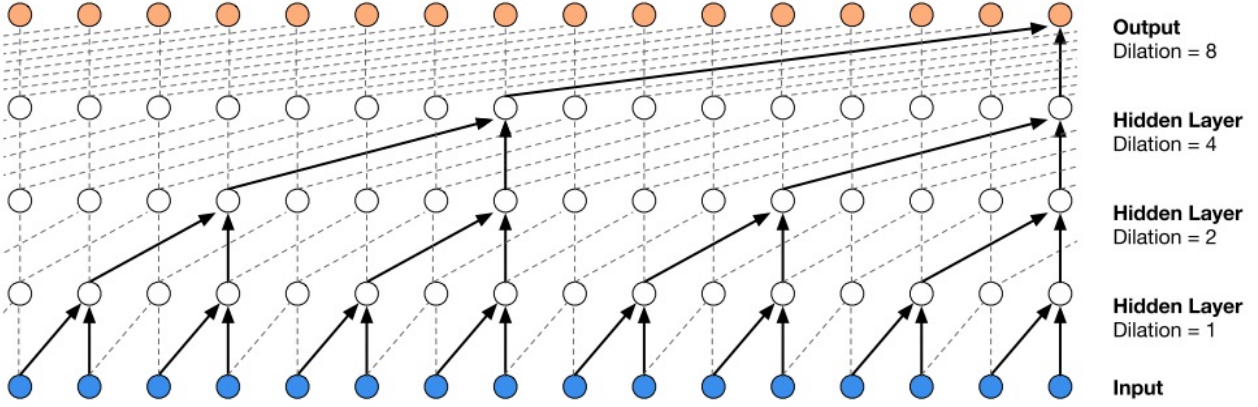
Figure 5: GRU, hidden layer

Wave Net

CNN + RNN.

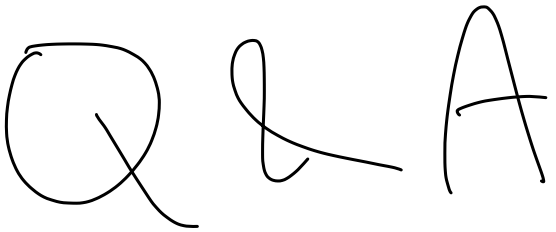
How?


memory cell.
Conv-1D


Output
Dilation = 8
Hidden Layer
Dilation = 4
Hidden Layer
Dilation = 2
Hidden Layer
Dilation = 1
Input

장기 기억

단기 기억



출처.

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