深度學習模型
Long Short Term Memory networks

如何利用LSTM來預測股票的漲跌？

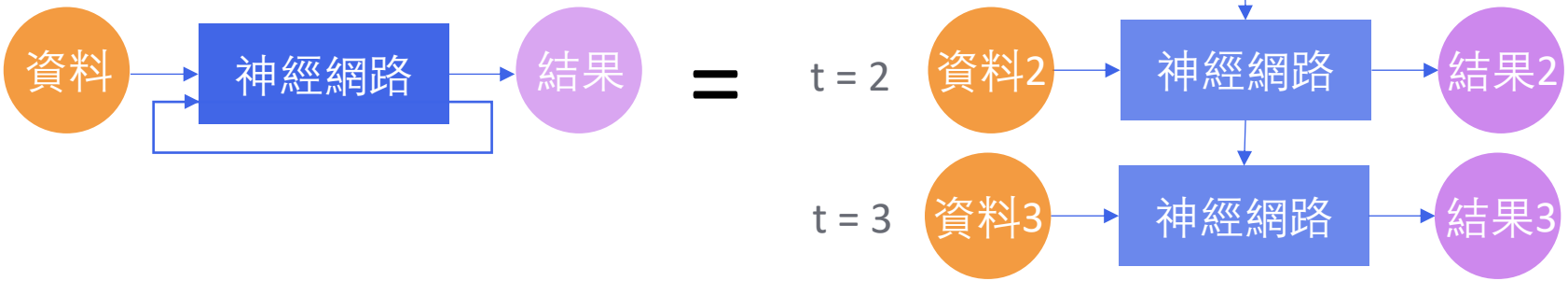
如何更好的預測時間序列？

神經網路
無法「記憶」

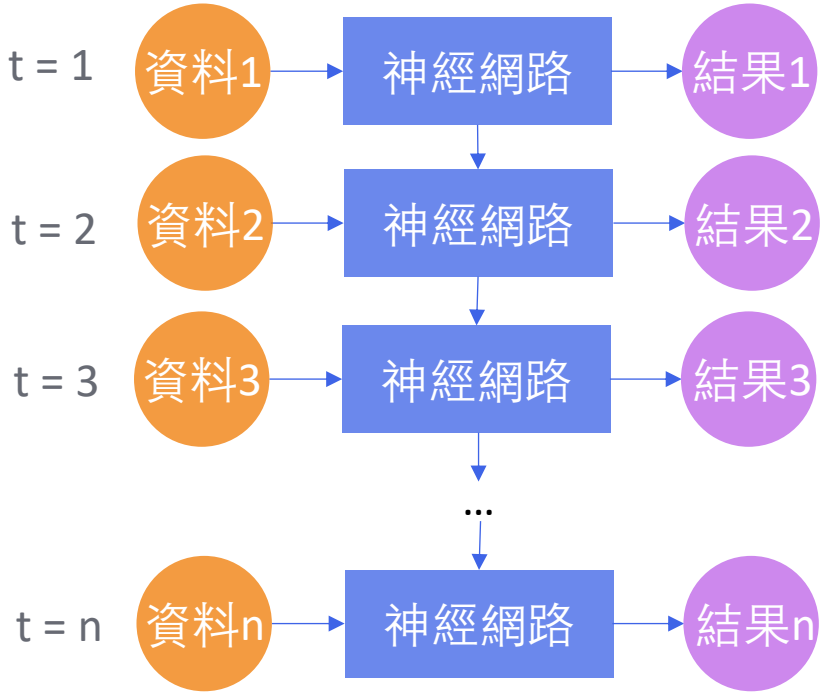
始祖：Recurrent Network（RNN）

有記憶的
神經網路

始祖：Recurrent Network（RNN）

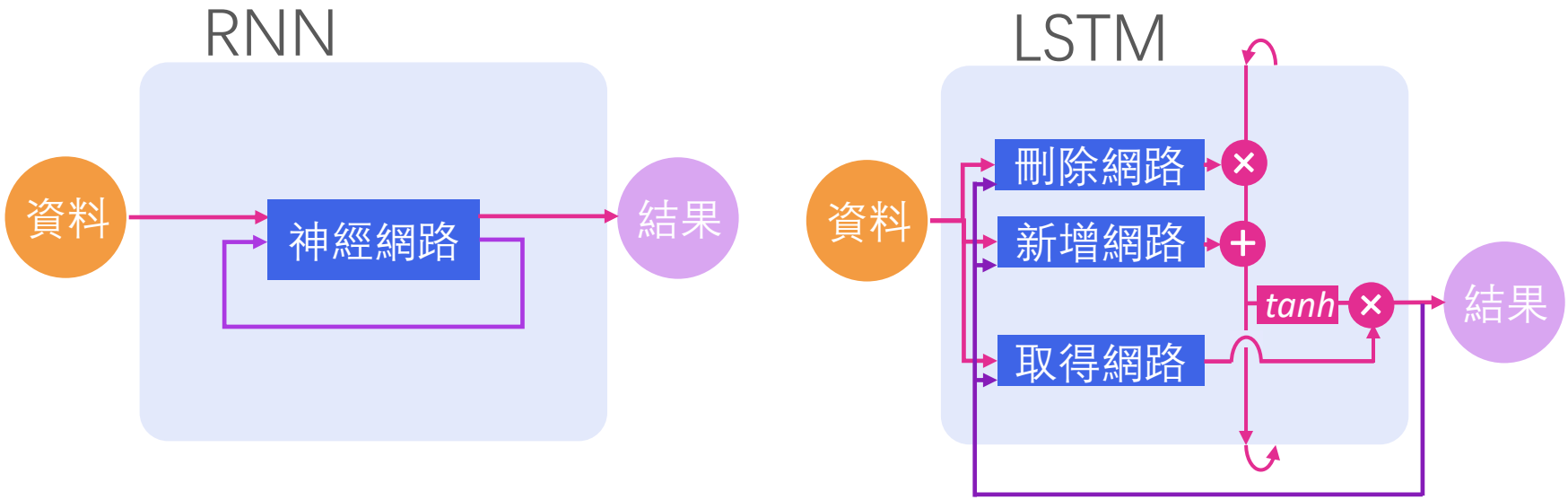


缺點：只有短暫的記憶



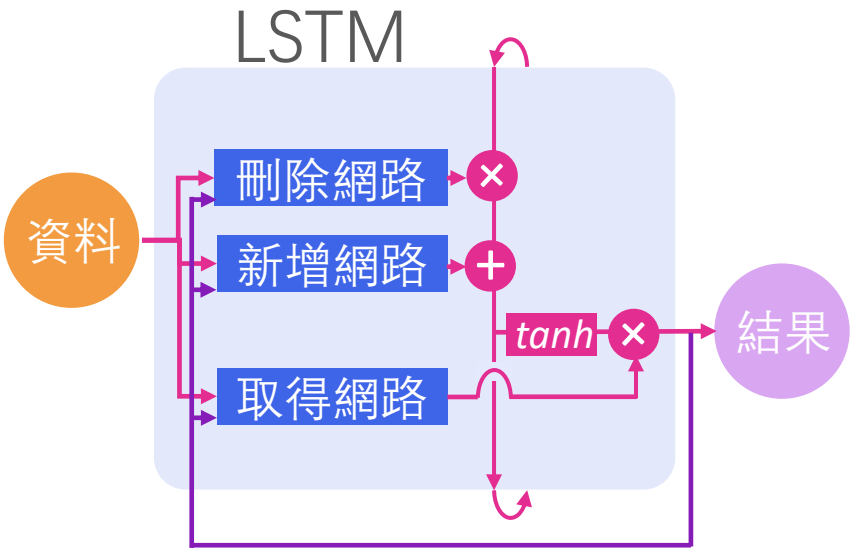
- 結構上越遠的資料
- → 比較不容易訓練。

Long Short Term Memory networks(LSTM)

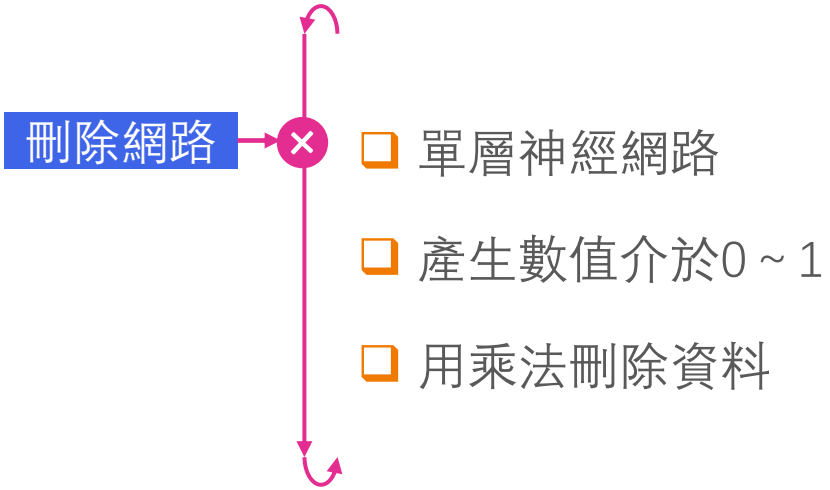


Long Short Term Memory networks(LSTM)

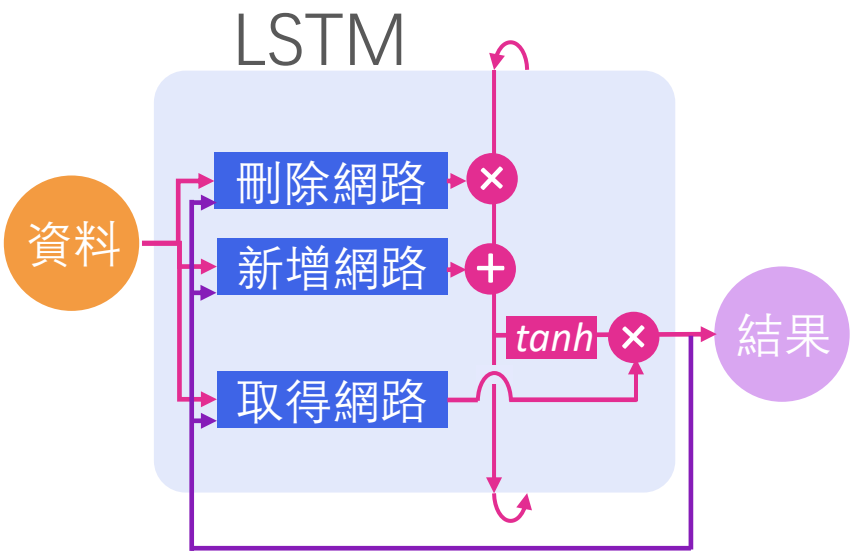
- 記憶體：
  - 資料不易被更動
  - 儲存重要資料的地方



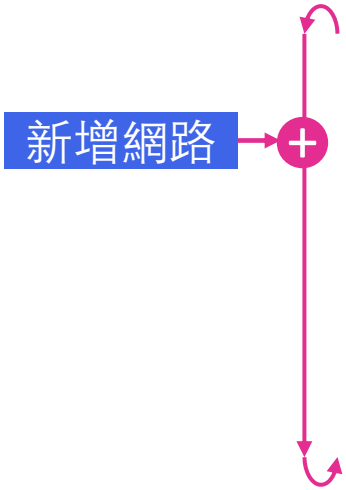
Long Short Term Memory networks(LSTM)



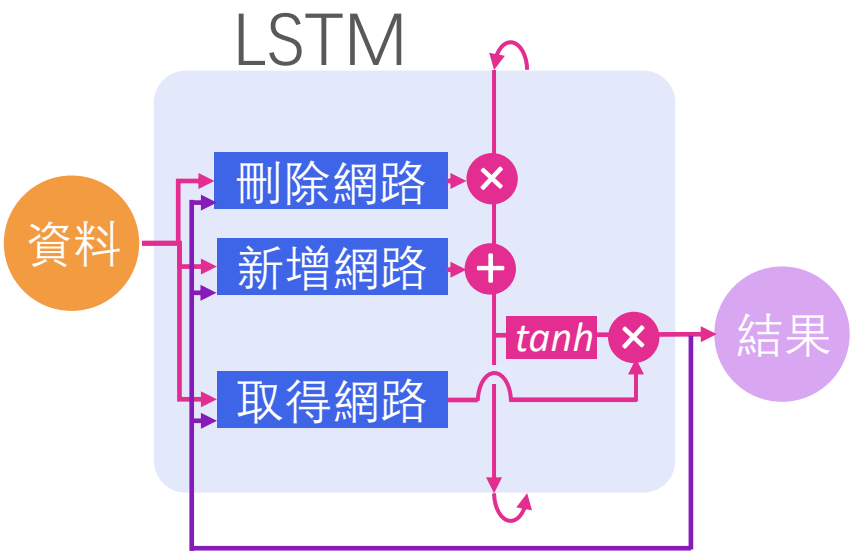
- 單層神經網路
- 產生數值介於0 ~ 1
- 用乘法刪除資料



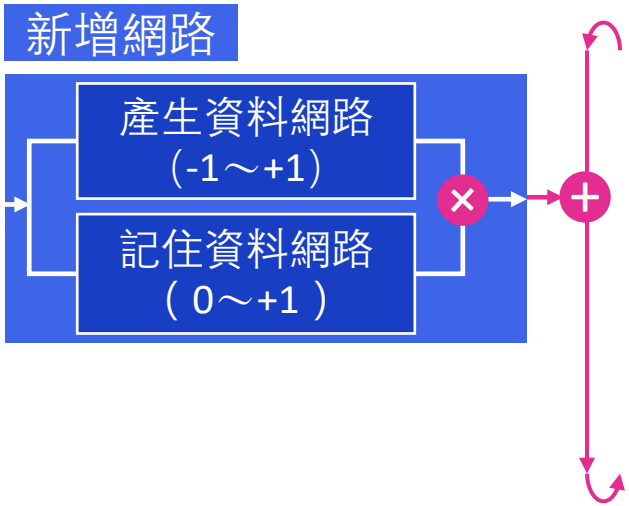
Long Short Term Memory networks(LSTM)

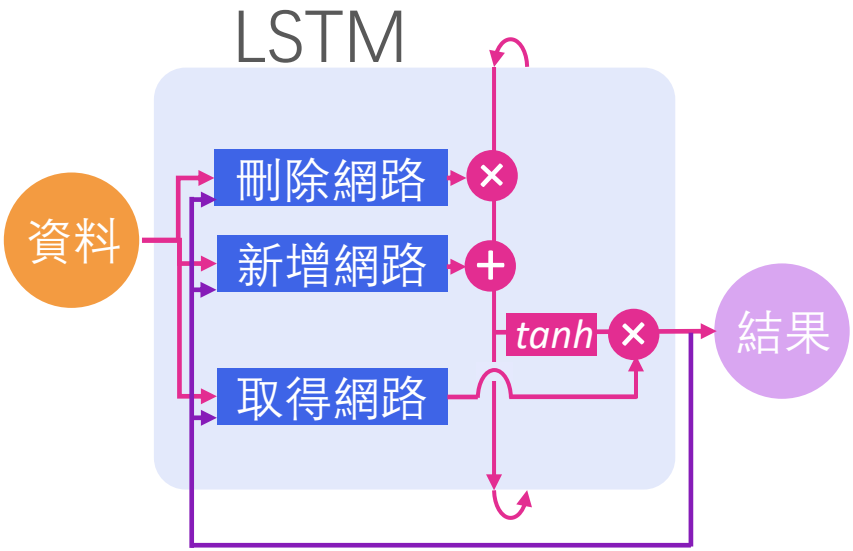


- 新增資料於記憶體
- 單層神經網路 X2



Long Short Term Memory networks(LSTM)





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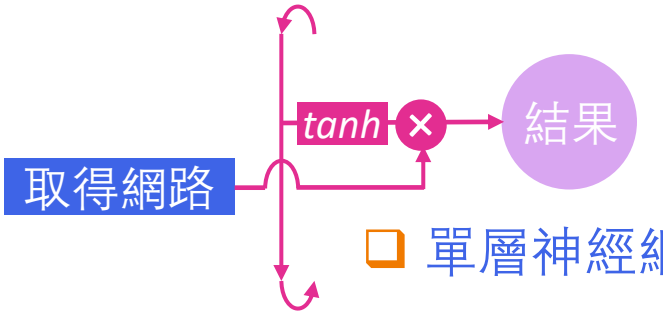
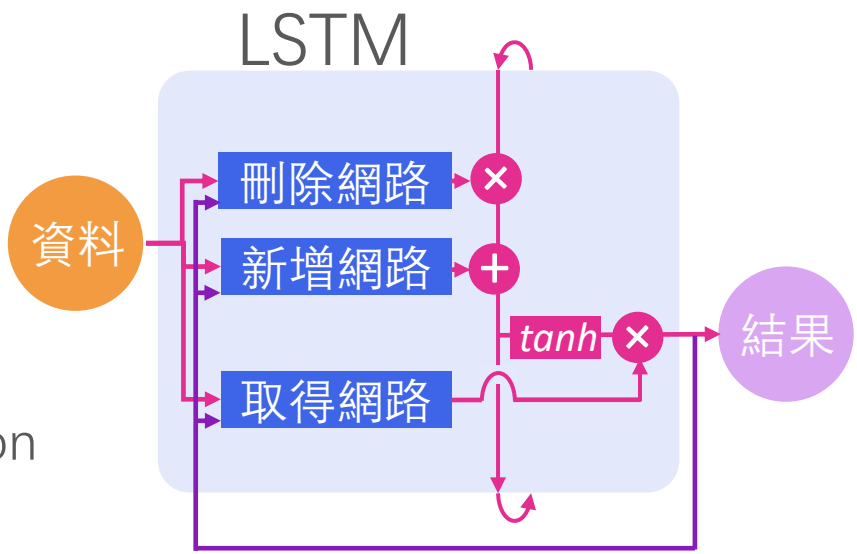


- 單層神經網路
- 產生數值介於0 ~ 1
- 用乘法篩選出資料
- tanh：Activate function
  - 將資料限制於-1與1之間



相關文章

- LSTM詳細介紹：
  http://colah.github.io/posts/2015-08-Understanding-LSTMs/

調整Dataset

Features

Label

Test case

ɔb	KDb2	KDb3	...	b7	LINEARREG_SLOPE0	LINEARREG_SLOPE1	ADXR0	ADXR1	ADXR2	ADXR3	ADXR4	ADXR5	return
48	0.470707	-0.518159	...	-2.039433	-0.217746	-0.079338	-1.250400	0.006752	0.654803	0.740151	-0.304256	-1.372484	992181
35	0.458084	-0.508642	...	-1.977973	-0.317632	-0.119393	-1.230240	0.016288	0.649457	0.745014	-0.300399	-1.369807	88840
14	0.446137	-0.497484	...	-2.104524	-0.453667	-0.169508	-1.195411	0.030271	0.644810	0.750913	-0.296170	-1.366474	95653
93	0.439032	-0.484282	...	-2.024491	-0.585646	-0.215678	-1.169615	0.040297	0.638831	0.756044	-0.292754	-1.363479	92685
74	0.433602	-0.470015	...	-1.892973	-0.703687	-0.255871	-1.157399	0.046305	0.631577	0.760682	-0.290158	-1.360531	88446
16	0.425624	-0.456068	...	-1.886620	-0.805904	-0.293032	-1.143905	0.054283	0.625046	0.765804	-0.287467	-1.357622	90339
38	0.415334	-0.445576	...	-1.967696	-0.923523	-0.339733	-1.127153	0.064566	0.619343	0.771525	-0.284426	-1.354570	002861
34	0.404385	-0.434844	...	-1.917896	-1.035797	-0.387040	-1.115911	0.065972	0.613198	0.777560	-0.281008	-1.351438	004699
37	0.387079	-0.422755	...	-1.949410	-1.123570	-0.411986	-1.107473	0.066280	0.606512	0.783684	-0.277984	-1.348332	007292
14	0.369046	-0.411077	...	-1.961860	-1.203506	-0.436790	-1.098462	0.067775	0.600066	0.789503	-0.274913	-1.345106	007553

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謝謝您的收看

下個單元見！