


Ask or Search Quora

Ask Question

Read

Answer¹Notifications¹ Mages

Long short-term memory (LSTM) +3

What is the meaning of "The number of units in the LSTM cell?"

From Tensorflow code:

num_units: int, The number of units in the LSTM cell.

Can't get what does this mean. What are the units of LSTM cell? Gates? Does this mean "number of units in the recurrent projection layer for Deep LSTM"? That is other thing...

Answer

Request ▲

Follow 23 Comment Share Downvote

Have this question too? Request Answers:

Request From Quora

We will distribute this question to writers, and notify you about new answers.

**Sreejesh PMohanar**, B.Tech Electronics and Communication Engineering & Ma...

3 Answers in Machine Learning

**Srihitha**, Learning machine learning :)

6 Answers in Machine Learning

**Mandar Gurav**, PhD from Indian Institute of Technology, Bombay (2018)

1 Answer in TensorFlow (Open Source Software Library)



View More or Search

Promoted by Udacity.com IN

Launch a career in artificial intelligence today.

Get your Machine Learning Engineer Nanodegree in this course, co-created by Google.

Learn More at Udacity.com

Related Questions

[What is in the cell state in an LSTM? What information does it contain?](#)

[How is the hidden state \(h\) different from the memory \(c\) in an LSTM cell?](#)

[What the difference between an LSTM memory cell and an LSTM layer?](#)

[What is the difference between the cell state and cell state in LSTM?](#)

[To what extent does the dimension of LSTM hidden states affect performance?](#)

[When is it good to use 2 or more LSTM blocks in one layer?](#)

[What is the meaning of 'projection layer' in lstm?](#)

[Is one LSTM block better then more LSTM blocks?](#)

[What does it mean for LSTM to be multilayer?](#)

[How does LSTM network learn to use a reset gate?](#)

More Related Questions

Question Stats

23 Followers

8,486 Views

Last Asked Nov 11

Edits

3 Answers

**Mostafa Samir**, Independently resareshing AI, while using TensorFlow

Written Jul 24, 2016

An LSTM keeps two pieces of information as it propagates through time:

- A **hidden state**; which is the memory the LSTM accumulates using its (forget, input, and output) gates through time, and
- The **previous time-step output**.

Tensorflow's num_units is the size of the LSTM's hidden state (which is also the size of the output if no projection is used). To make the name *num_units* more intuitive, you can think of it as the number of hidden *units* in the LSTM cell, or the number of memory *units* in the cell.

2.6k Views · View Upvotes

Upvote 9

Downvote



Add a comment...

Recommended All

**Hieu Pham**, Has done some machine learning

Written Jul 28, 2016 · Upvoted by Matthew Li, PhD Natural Language Processing & Machine Learning (2017)

LSTM is by definition, a function $F: \mathbb{R}^d \times \mathbb{R} \times \mathbb{R}^d \rightarrow \mathbb{R}^d \times \mathbb{R}^d$. It takes in $x, p_c, p_h \in \mathbb{R}^d$ and performs the following computations:

Ask or Search Quora

Ask Question

Read

Answer¹

Notifications¹

Mages

$$\begin{bmatrix} o \\ g \end{bmatrix} = \begin{bmatrix} \sigma \\ \tanh \end{bmatrix} \left(\begin{bmatrix} p_h \end{bmatrix} \right)$$

$$c = i \otimes g + f \otimes p_c$$

$$h = o \otimes \tanh(c)$$

where \otimes denotes the elementwise product of vectors. The LSTM returns $(c, h) = F(x, p_c, p_h)$.

The number d is loosely referred to as “the number of units” in the LSTM cell.

3.6k Views · View Upvotes · Answer requested by Pavel Brans

Upvote 21

Downvote

Add a comment...

Recommended All

Chaitanya Ramji, worked at IEEE

Written Jul 24, 2016

Long Short-Term Memory (LSTM) is a specific recurrent neural network (RNN) architecture that was designed to model temporal sequences and their long-range dependencies more accurately than conventional RNNs. The LSTM does have the ability to remove or add information to the cell state, carefully regulated by structures called gates.

Gates are a way to optionally let information through. They are composed out of a sigmoid neural net layer and a pointwise multiplication operation. An LSTM has three of these gates, to protect and control the cell state. If I'm not wrong, the number of units in the LSTM cell should be referring to the number of gates i.e. 3. Please correct me incase I'm wrong.

1.9k Views

Upvote

Downvote

Add a comment...

Recommended All

Related Questions

What is in the cell state in an LSTM? What information does it contain?

How is the hidden state (h) different from the memory (c) in an LSTM cell?

What the difference between an LSTM memory cell and an LSTM layer?

What is the difference between the cell state and cell state in LSTM?

To what extent does the dimension of LSTM hidden states affect performance?

When is it good to use 2 or more LSTM blocks in one layer?

What is the meaning of 'projection layer' in lstm?

Is one LSTM block better then more LSTM blocks?

What does it mean for LSTM to be multilayer?

How does LSTM network learn to use a reset gate?

Top Stories from Your Feed

Answer written · Apr 3

What are some interesting statistics of Mahabharat?

Ajith Neelakantan, Proud to be my Mom's son

Updated 16h ago

- Kuruk shetra , the place where the war was fought , was spread over an area of 128 sq kms during the time of Mahabharata

Army	Equivalent	Chariots	Elephants	Foot Soldiers	Horses
gatti		1	1	5	1
sena-mukha	= 3 Patti	3	3	15	9
gudma	= 3 Sena-mukha	9	9	45	27
gatha	= 3 Gudma	27	27	135	81
vajirini	= 3 Gatha	81	81	405	243
gathana	= 3 Vajirini	243	243	1215	729
dhama	= 3 Gathana	729	729	3645	2187
ambala	= 3 Dhama	2187	2187	10935	6561
akshauhini	= 10 Ambala	21870	21870	109350	65610

Read In Feed

Answer written · Apr 12

If everyone starts working hard, why can't everyone become a billionaire?

Ali AlShamsi, Alternative Economic System Researcher at AliOAlShamsi.com

Written Apr 12

Simple statistical difference. The ordinary hard worker:

- Serves ONE client.

Read In Feed

Undiscovered new answer · 2m

How many thread can one start for a process?

Shashank Singh, works at Arizona State University

Written 2m ago

Just like there are limits to data types, there must be some limit to the number of threads possible (statck-overflow posts seem to have precise answers). However, a more important question in my o...

Read In Feed

https://www.quora.com/What-is-the-meaning-of-%E2%80%9CThe-number-of-units-in-the-LSTM-cell

2/2