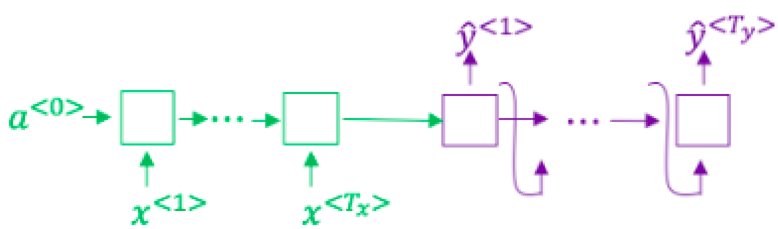
Your grade: 100%

Your latest: **100%** • Your highest: **100%**
To pass you need at least 80%. We keep your highest score.

Next item →

1. Consider using this encoder-decoder model for machine translation. **1 / 1 point**



This model is a "conditional language model" in the sense that the encoder portion (shown in green) is modeling the probability of the input sentence x.

- ◯ True
- ◉ False

✓ **Correct**

2. In beam search, if you increase the beam width B, which of the following would you expect to be true? Check all that apply. **1 / 1 point**

- ☑ Beam search will use up more memory.

✓ **Correct**

- ☑ Beam search will generally find better solutions (i.e. do a better job maximizing $P(y \mid x)$)

Correct

- [ ] Beam search will converge after fewer steps.

- [x] Beam search will run more slowly.

Correct

3. True/False: In machine translation, if we carry out beam search without using sentence normalization, the algorithm will tend to output overly long translations.

1 / 1 point

- (●) False
- ( ) True

Correct
In machine translation, if we carry out beam search without using sentence normalization, the algorithm will tend to output overly short translations.

4. Suppose you are building a speech recognition system, which uses an RNN model to map from audio clip x to a text transcript y. Your algorithm uses beam search to try to find the value of y that maximizes $P(y \mid x)$.

1 / 1 point

On a dev set example, given an input audio clip, your algorithm outputs the transcript $\hat{y}$ = "I'm building an A Eye system in Silly con Valley.", whereas a human gives a much superior transcript y^* = "I'm building an AI system in Silicon Valley."

According to your model,

$$P(\hat{y} \mid x) = 1.95*10^{-7}$$

$$P(y^* \mid x) = 3.42*10^{-9}$$

True/False: Trying a different network architecture could help correct this example.

- ○ False
- ◉ True

Correct

$P(y^* \mid x) < P(\hat{y} \mid x)$ indicates the error should be attributed to the RNN rather than to the search algorithm. If the RNN model is at fault, then a deeper layer of analysis could help to figure out if you should add regularization, get more training data, or try a different network architecture.

5. Continuing the example from Q4, suppose you work on your algorithm for a few more weeks, and now find that for the vast majority of examples on which your algorithm makes a mistake, $P(y^* \mid x) > P(\hat{y} \mid x)$. This suggests you should focus your attention on improving the search algorithm.

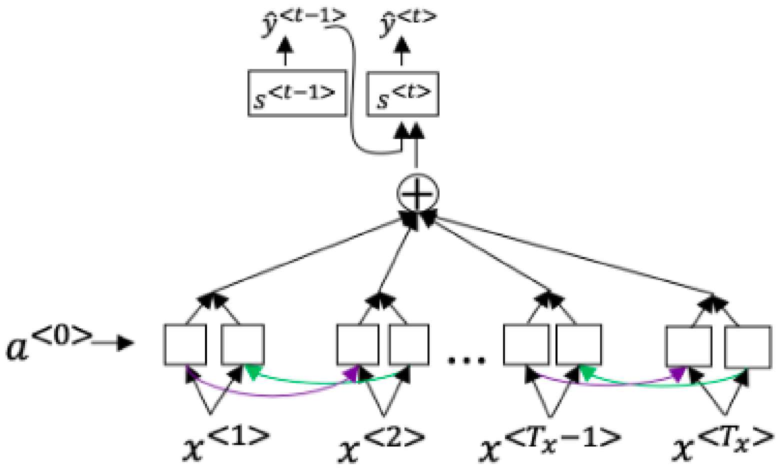
1 / 1 point

- ◉ True.
- ○ False.

Correct

6. Consider the attention model for machine translation.

1 / 1 point



Further, here is the formula for $\alpha^{<t,t'>}$.

$$\alpha^{<t,t'>} = \frac{\exp(e^{<t,t'>})}{\sum_{t'=1}^{T_x}\exp(e^{<t,t'>})}$$

- [ ] $\sum_{t'} \alpha^{<t,t'>} = 0$
- [ ] $\sum_{t'} \alpha^{<t,t'>} = -1$
- [x] $\alpha^{<t,t'>}$ is equal to the amount of attention $y^{<t>}$ should pay to $a^{< t' >}$

$\alpha^{<t,t'>}$

Correct
Correct! $\alpha^{<t,t'>}$ = amount of attention $y^{<t>}$ should pay to $a^{<t'>}$

- [ ] We expect $\alpha^{<t,t'>}$ to be generally larger for values of $a^{<t'>}$ that are highly relevant to the value the network should output for $y^{<t'>}$. (**Note the indices in the superscripts**.)

7. The network learns where to "pay attention" by learning the values $e^{<t,t'>}$, which are computed using a small neural network: **1 / 1 point**

Which of the following does $s^{<t>}$ depend on? Select all that apply.

- [ ] s^t is independent of $\alpha^{<t,t'>}$ and $e^{<t,t'>}$.

- [x] $\alpha^{<t,t'>}$

> **Correct**
> $s^{<t>}$ depends on $\alpha^{<t,t'>}$ which in turn depends on $e^{<t,t'>}$.

- [x] $e^{<t,t'>}$

> **Correct**
> $s^{<t>}$ depends on $\alpha^{<t,t'>}$ which in turn depends on $e^{<t,t'>}$.

- [ ] $s^{<t+1>}$

8. Compared to the encoder-decoder model shown in Question 1 of this quiz (which does not use an attention mechanism), we expect the attention model to have the greatest advantage when:

1 / 1 point

- (●) The input sequence length T_x is large.

- ( ) The input sequence length T_x is small.

> **Correct**

1 / 1 point

9. Under the CTC model, identical repeated characters not separated by the "blank" character (_) are collapsed. Under the CTC model, what does the following string collapse to?

kk_eee____ee_p__eeeeeee_____rrrrr

- ○ keper
- ◉ keeper
- ○ kkeeeeepeeeeeeeerrrrr
- ○ ke epe r

Correct
The basic rule for the CTC cost function is to collapse repeated characters not separated by "blank". If a character is repeated, but separated by a “blank”, it is included in the string.

10. In trigger word detection, $x^{<t>}$ represents the trigger word x being stated for the t-th time

- ◉ False
- ○ True

Correct
$x^{<t>}$ represents the features of the audio at time t.