Hyperparameter tuning, Batch Normalization, Programming Frameworks

10/10 points (100%)

Quiz, 10 questions

1/1 points 1. If searching among a large number of hyperparameters, you should try values in grid rather than random values, so that you can carry out the search more systematically and not rely on chance. True or False? True False Correct 1/1 points 2. Every hyperparameter, if set poorly, can have a huge negative impact on training and so all hyperparameters are about equally important to tune well. True or False True False Correct Yes. We've seen in lecture that some hyperparameters, such as the learning rate, are more critical than others.	ongı	ratulations! You passed!	Ne
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Correct Yes. We've seen in lecture that some hyperparameters, such as the learning rate, are more critical than others. 1/1 points 3.		so all hyperparameters are about equally important to tune well.	
Yes. We've seen in lecture that some hyperparameters, such as the learning rate, are more critical than others. 1/1 points 3.	0	False	
points 3.	Ye	s. We've seen in lecture that some hyperparameters, such as the	learning
3.	_		
strategy) or train a lot of models in parallel ("Caviar") is largely determined by:	0	points	

Whether you use batch or mini-batch optimization

//04/2018	Coursera Online Courses From Top Universities. Join for Free Coursera									
	The presence of local minima (and saddle points) in your neural network									
Hyperpara Frameworl	I The amount of compatational power you can access	10/10 points (100%)								
Quiz, 10 questions	Correct									
	The number of hyperparameters you have to tune	_								
	1/1 points									
	4. If you think β (hyperparameter for momentum) is between on 0.9 and 0.99, which of the following is the recommended way to sample a value for beta?									
	1 r = np.random.rand() 2 beta = r*0.09 + 0.9									
	1 r = np.random.rand() 2 beta = 1-10**(- r - 1)									
	Correct									
	1 r = np.random.rand() 2 beta = 1-10**(- r + 1)									
	1 r = np.random.rand() 2 beta = r*0.9 + 0.09									
		-								
	1/1 points									
	5. Finding good hyperparameter values is very time-consuming. So typically you should do it once at the start of the project, and try to find very good hyperparameters so that you don't ever have to revisit tuning them again. True or false?									
	True									
	False									

Correct

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10/10 points (100%)

Quiz, 10 questions



1/1 points

6

In batch normalization as presented in the videos, if you apply it on the $\it l$ th layer of your neural network, what are you normalizing?



$$oldsymbol{\bigcirc}$$
 $z^{[i]}$

Correct

$$W^{[l]}$$

$$\bigcirc$$
 $a^{[l]}$

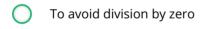


1/1 points

7.

In the normalization formula $z_{norm}^{(i)}=\frac{z^{(i)}-\mu}{\sqrt{\sigma^2+\varepsilon}}$, why do we use epsilon?

- ()	T_{\wedge}	havo	~	more	accurate	norma	dization	_
- (,	10	Have	а	111016	accurate	1101111a	IIIZatiOi	ı



Correct

In case
$$\mu$$
 is too small



points

8.

Which of the following statements about γ and β in Batch Norm are true?

They set the mean and variance of the linear variable $z^{[l]}$ of a given layer.

Correct

Hyperparam Frameworks ^{Quiz, 10} questions	layer and applies to all the hidden units in that layer					
	Un-se	lected is correct				
	Corre	They can be learned using Adam, Gradient descent with momentum, or RMSprop, not just with gradient descent.				
	Un-se	The optimal values are $\gamma=\sqrt{\sigma^2+\varepsilon}$, and $\beta=\mu$. Elected is correct				
		eta and γ are hyperparameters of the algorithm, which we tune via random sampling.				
	Un-se	elected is correct				
-	~	1/1 points	_			
A		aining a neural network with Batch Norm, at test time, to evaluate the neural k on a new example you should:				
		Use the most recent mini-batch's value of μ and σ^2 to perform the needed normalizations.				
		If you implemented Batch Norm on mini-batches of (say) 256 examples, then to evaluate on one test example, duplicate that example 256 times so that you're working with a mini-batch the same size as during training.				
		Skip the step where you normalize using μ and σ^2 since a single test example cannot be normalized.				
	0	Perform the needed normalizations, use μ and σ^2 estimated using an exponentially weighted average across mini-batches seen during training.				
	Corre	ct				



Hyperparameter tuning, Batch Normalization, Programming

10/10 points

Framework^{§ 0}. (100%) . Which of these statements about deep learning programming frameworks are true? Quiz, 10 questions (Check all that apply) Even if a project is currently open source, good governance of the project helps ensure that the it remains open even in the long term, rather than become closed or modified to benefit only one company. Correct A programming framework allows you to code up deep learning algorithms

Correct

Deep learning programming frameworks require cloud-based machines to run.

with typically fewer lines of code than a lower-level language such as

Un-selected is correct

Python.





