QUIZ • 30 MIN

Neural Network Basics

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TOTAL POINTS 10

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1. What does a neuron compute? 1 point

- A neuron computes the mean of all features before applying the output to an activation function
- A neuron computes a function g that scales the input x linearly (Wx + b)
- A neuron computes a linear function (z = Wx + b) followed by an activation function
- A neuron computes an activation function followed by a linear function (z = Wx + b)

2. Which of these is the "Logistic Loss"? 1 point

- $\mathcal{L}^{(i)}(\hat{y}^{(i)}, y^{(i)}) = |\, y^{(i)} - \hat{y}^{(i)} \,|^2$
- $\mathcal{L}^{(i)}(\hat{y}^{(i)}, y^{(i)}) = -(y^{(i)} \log(\hat{y}^{(i)}) + (1 - y^{(i)}) \log(1 - \hat{y}^{(i)}))$
- $\mathcal{L}^{(i)}(\hat{y}^{(i)}, y^{(i)}) = max(0, y^{(i)} - \hat{y}^{(i)})$
- $\mathcal{L}^{(i)}(\hat{y}^{(i)}, y^{(i)}) = |\, y^{(i)} - \hat{y}^{(i)} \,|$

3. Suppose img is a (32,32,3) array, representing a 32x32 image with 3 color channels red, green and blue. How do you reshape this into a column vector? 1 point

- x = img.reshape((32*32*3,1))
- x = img.reshape((1,32*32,*3))
- x = img.reshape((32*32,3))
- x = img.reshape((3,32*32))

4. Consider the two following random arrays "a" and "b": 1 point

```
a = np.random.randn(2, 3) # a.shape = (2, 3)
b = np.random.randn(2, 1) # b.shape = (2, 1)
c = a + b
```

What will be the shape of "c"?

- c.shape = (3, 2)
- c.shape = (2, 1)
- c.shape = (2, 3)
- The computation cannot happen because the sizes don't match. It's going to be "Error"!