Domanda **1**

Risposta non ancora data

Punteggio max.: 1,00

You are building a Deep Learning system based on Computer Vision for recognizing the quality of tomato. The system has to predict 1 when you have a tomato with top quality (y=1) and zero in the opposite case (y=0). In addition, in the training phase you want to limit, as much as possible, the number of "dead neurons" (neurons that remain inactive no matter what input is supplied). Which one of these activation functions would you recommend using for the intermediate layers?

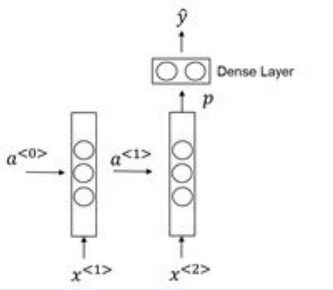
- A. LeakyReLU
- B. Sigmoid
- C. Relu
- D. SoftMax

Domanda **2**

Risposta non ancora data

Punteggio max.: 1,00

Suppose your input is a $x^{<i>}$ vector with four elements and you use the following Recurrent Neural Network (RNN) for a regression task, with which you want to predict a single value:



How many parameters does this RNN have (including the bias parameters)?

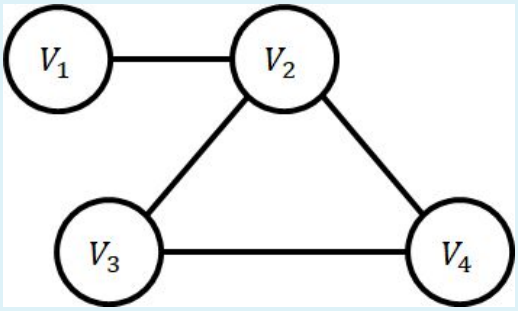
Risposta:

Domanda **3**

Risposta non ancora data

Punteggio max.: 1,00

Consider the following graph:



in which each node is also connected with itself (self-loops).

Compute the Adjacency matrix, the Degree matrix, and the inverse of the Degree matrix. Then evaluate the operator the term $\hat{A}_{3,2}$

Round the figure to three digits after the decimal point. Use comma as separator.

Risposta:

Domanda **4**

Risposta non ancora data

Punteggio max.: 1,00

Suppose you learn a word embedding for a vocabulary of 10000 words. Then the embedding vectors should be 10000 dimensional, so as to capture the full range of variation and meaning in those words.

- A. True
- B. False

Domanda **5**

Risposta non ancora data

Punteggio max.: 1,00

After training a neural network with Batch Norm, at test time, to evaluate the neural network on a new example you should:

- A. Perform the needed normalizations, use μ and σ^2 estimated using an exponentially weighted average across mini-batches seen during training.
- B. Use the most recent mini-batch's value of μ and σ^2 to perform the needed normalizations.
- C. If you implemented Batch Norm on mini-batches of (say) 256 examples, then to evaluate on one test example, duplicate thatexample 256 times so that you're working with a mini-batch the same size as during training.
- D. Skip the step where you normalize using and since a single test example cannot be normalized.

Domanda **6**

Risposta non ancora data

Punteggio max.: 1,00

Which ones of the following statements on Inception Networks are true? (Check all that apply.)

- [ ] A. Making an inception network deeper (by stacking more inception blocks together) should not hurt training set performance.
- [ ] B. Inception networks incorporates a variety of network architectures (similar to dropout, which randomly chooses a network architecture on each step) and thus has a similar regularizing effect as dropout.
- [ ] C. A single inception block allows the network to use a combination of 1x1, 3x3, 5x5 convolutions and pooling.
- [ ] D. Inception blocks usually use 1x1 convolutions to reduce the input data volume's size before applying 3x3 and 5x5 convolutions.

Domanda **7**

Risposta non ancora data

Punteggio max.: 1,00

Suppose you are building a Convolutional Neural network and you are using a cascade of filters: two 4x4 filters (with stride=1 and no padding).

Which is their receptive field?

- ( ) A. 12x12
- ( ) B. 7x7
- ( ) C. 3x3
- ( ) D. 9x9
- ( ) E. 5x5
- ( ) F. None of these