

local response normalization layer

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1 local response normalization layer

In this paper I am going to write what I have found od response normalization layer.

2 Fist Forum

<https://www.kaggle.com/c/second-annual-data-science-bowl/forums/t/18548/keras-deep-learning-tutorial-0-0359?page=6>

3 Second one

<https://www.quora.com/What-are-response-normalization-layers-in-neural-networks>

ts best explained with Convolutional Neural Nets on image recognition. There are two types of normalization:

-pooling-normalization, which averages or takes the max over some small image space, making the network shift/scale invariant.

-response-normalization, which takes the max over different units at the same location in image space. Picture two units, where one response most to a vertical and the other to a horizontal line. In response-normalization only the strongest activation wins and gets transferred to the next layer.

Difference between local and batch normalization:

<https://www.quora.com/What-are-the-practical-differences-between-batch-normalization-and->

All the normalization is calculated using this equation

$$x = \frac{x - \text{mean}(x)}{\sqrt{\text{std}(x)}} \quad (1)$$

The difference is how to calculate the xx.

In layer normalization xx = all of the summed inputs to the neurons in a layer on a single training case

And in batch normalization $x =$ all of the summed inputs of single neuron on single batch