

TF Softmax Regression

Saturday, 24, 2016

- Mnist
- Each image is 28×28

~~Can be~~

28×28

- 55K images = $[55000, 784]$ array

- labels are one-hot

each pixel

→ eg 3 = $[0, 0, 0, 1, 0, 0, 0, 0, 0, 0]$

→ labels = $[55000, 10]$ array

- Softmax is a simple model for when the alg might want to assign probabilities of classification.

Gives a # b/w 0, 1 to each class
& adds up to 1

- Step 1 → Add evidence of our input being in certain classes,

Step 2 → Convert into probabilities

- Must

evidence → weighted sum of pixel intensities. is -ve if in favour of not being in class, +ve otherwise
↙ input img

$$\text{evidence } i = \sum_j W_{i,j} x_j + b_i$$

↙ weights ↘ bias
 ↘ summing index

$$y = \text{prob} = \text{softmax}(\text{evidence})$$

↪ find out → softmax
turns evidence into prob
dist at the output layer

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24/09/16