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TJ

Practical reason of choosing gradient ascent vs gradient descent

Thomas JASKULA Learning Linear Classifiers (/learn/ml-classification/module/GncDF/discussions) · 2 days ago (/learn/ml-classification/discussions/Bkop3er8EeWK_Q7eN25hdw)

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I know the difference between gradient ascent and gradient descent. The first one is to maximize the likelihood function and the second one to minimize the cost function. Both gradient descent and ascent are practically the same.

However are there any properties I'm not aware that one would use gradient ascent or descent to logistic regression as both are possible ?

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The advantage to gradient ascent is that when there are a lot of parameters the number of better paths is much fewer than the number of worse paths. So "ascent to correct" is likely to converge sooner than "descent away from errors" would.

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Is there any mathematical reasoning for this? Actually for me, intuitively it's much easier just to fall down than to climb up. But that's just the intuition, from mathematical point of view, I'm pretty sure both approaches are equivalent given the same function (to minimize a function is the same to maximize the same function it we reverse the sign). But this just might be the reason why we chose gradient ascent for logistic regression - because data likelihood is the most appropriate way to measure the quality of fit.

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Yes, intuitively this seems like arguing about whether it is better to sort ascending or descending.

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