4. Gradient Descent

Exercises due Feb 22, 2023 08:59 -03 Completed

Gradient Descent

0:00 / 0:00 1.0x

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Gradient Descent: Geometrically Revisited

2/2 points (graded)
Assume $\theta \in \mathbb{R}$. Our goal is to find θ that minimizes

$$J(\theta, \theta_0) = \frac{1}{n} \sum_{i=1}^{n} \text{Loss}_h \left(y^{(i)} \left(\theta \cdot x^{(i)} + \theta_0 \right) \right) + \frac{\lambda}{2} || \theta ||^2$$

through gradient descent. In other words, we will

1. Start θ at an arbitrary location: $\theta \leftarrow \theta_{start}$
2. Update θ repeatedly with $\theta \leftarrow \theta - \eta \frac{\partial J(\theta, \theta_0)}{\partial \theta}$ until θ does not change significant

away from the origin

towards the origin

upwards

downwards

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