

Start

Initialize parameters, including the iterated θ , the gradient g , $t = 0$, etc.

$t \leftarrow t + 1$

$\theta_{t-1} \geq c$

No

Yes

$g_t \leftarrow {}^R D_{\theta}^1 f(\theta_{t-1})$ by Eq.(2)

$g_t \leftarrow {}^R D_{\theta}^{\alpha} f(\theta_{t-1})$ by Eq.(2)

Updated θ_{t-1} by SGD, Momentum, Nesterov, AdaGrad, RMSProp, Adadelata, Adam, etc.

$t < Maxepoch - 1$

Yes

No

End

