Equation generator

<https://www.codecogs.com/latex/eqneditor.php>

RSMprop

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\Theta \_{i+1}=\Theta \_i-\eta \_i\bigtriangledown L\_i

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\eta \_i = \frac{\eta}{\sigma \_i}

\\

\sigma \_i = \sqrt{\alpha \sigma \_{i-1}^2+(1-\alpha )(g\_i)^2}, where\ g\_i =\bigtriangledown L\_i

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Momentum

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\Theta \_{i+1}=\Theta \_i + v\_i

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v\_i = \lambda v\_{i-1} + \eta \bigtriangledown L\_i

\\

Adam

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\Theta \_{i+1}=\Theta \_i-\eta \_i\bigtriangledown L\_i

\\

\eta\_i = \eta \frac{\hat{m}\_i}{\sqrt{\hat{v}\_i}+\varepsilon }

\\

\hat{m}\_i = \frac{m\_i}{1 - \beta \_1}

\\

m\_i = \beta\_1 v\_{i-1} + (1-\beta\_1 )\bigtriangledown L\_i

\\

\hat{v}\_i = \frac{v\_i}{1 - \beta \_2}

\\

v\_i = \beta\_2 v\_{i-1} + (1-\beta\_2 )(\bigtriangledown L\_i)^2

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