Absolute Value Loss

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$$\sigma_1(X) = \sum w_k |\delta_k - d_k(X)|$$

AM/GM

$$|\delta_k - d_k(X)| \leq \frac{1}{2} \frac{1}{|\delta_k - d_k(Y)|} \{(\delta_k - d_k(X))^2 + (\delta_k - d_k(Y))^2\}$$

$$\sigma_1(X) \leq \frac{1}{2} \sum \frac{w_k}{|\delta_k - d_k(Y)|} (\delta_k - d_k(X))^2 + \frac{1}{2}\sigma_1(Y)$$

$$d_k(X + \epsilon Y) = \begin{cases} d_k(X) + \epsilon \frac{1}{d_k(X)} A_{ij} X & if \\ \epsilon d_k(Y) & if \end{cases}$$