Support Vector Machine Equations

$(\vec{w} \cdot \vec{u}) + b \geq 0$

$(\vec{w} \cdot \vec{u}) + b \leq 0$

$y_i\big((\vec{w} \cdot \vec{x_i}) + b\big) - 1 = 0, for\ \vec{x_i}\ in\ median$

$Width = \max\left(\frac{2}{||\vec{w}||}\right)$

$Width = \min\left(\frac{1}{2}||\vec{w}||^2\right)$

$$L = \sum_{k=1}^{a} \alpha_i - \frac{1}{2} \sum_{i=1}^{b} \sum_{j=1}^{c} \alpha_i \alpha_j y_i y_j (x_i \cdot x_j)$$