h as DC function

$$h(w,\gamma) = h_1(w,\gamma) - h_2(w,\gamma)$$

Convex $h_1(w,\gamma) :=$

$$\frac{1}{2}\|w\|^2 +$$
$$C_1\left[\sum_{i=1}^{m}\max\{0, a_i^T w - \gamma + 1\} + \sum_{l=1}^{k}\max\{0, -b_l^T w + \gamma + 1\}\right] +$$
$$C_2\sum_{t=1}^{q}\max\{1, |w^T x_t - \gamma|\}$$

Convex $h_2(w,\gamma) :=$

$$C_2\sum_{t=1}^{q}|w^T x_t - \gamma|$$

$g_{1w} = w;$ $\quad g_{2w} = \vec{0};$

$g_{1\gamma} = 0;$ $\quad g_{2\gamma} = 0;$

for $i = 1 \dots m$ {

if $(a_i^T w - \gamma + 1 > 0)$ {

$g_{1w} = g_{1w} + C_1 a_i;$

$g_{1\gamma} = g_{1\gamma} - C_1;$ }

}

for $l = 1 \dots k$ {

if $(-b_l^T w + \gamma + 1 > 0)$ {

$g_{1w} = g_{1w} - C_1 b_l;$

$g_{1\gamma} = g_{1\gamma} + C_1;$ }

}

for $t = 1 \cdots q$ {

if $w^T x_t - \gamma > 0$ {

if $w^T x_t - \gamma > 1$ {

$g_{1w} = g_{1w} + C_2 x_t;$

$g_{1\gamma} = g_{1\gamma} - C_2;$ }

$g_{2w} = g_{2w} + C_2 x_t;$

$g_{2\gamma} = g_{2\gamma} - C_2;$

}

else {
if $-(w^T x_t - r) > 1$ {

$g_{1w} = g_{1w} - c_2 x_t$;

$g_{1r} = g_{1r} + c_2$; }

$g_{2w} = g_{2w} - c_2 x_t$;

$g_{2r} = g_{2r} + c_2$; }

}