

S.2: Pseudo-code for LHR

Algorithm 1: LHR ALGORITHM(V, W, λ)

comment: Variables initialization: $\mathbf{w} = \frac{1}{T}$, stopping

criteria ϵ , number of iterations T

for $t \leftarrow 1$ **to** T

while $\|\mathbf{w}^{(t+1)} - \mathbf{w}^{(t)}\| > \epsilon$

do $\left\{ \begin{array}{l} 1. \text{ Estimate the coefficients for hyperplane of} \\ \text{nearestmiss and hit } \boldsymbol{\alpha}, \boldsymbol{\beta}; \\ 2. \text{ Calculate the margin by Eq .S.1.7, conditional on the} \\ \text{estimated feature weights in } t \text{ step;} \\ 3. \text{ Update the weights by Eq. S.1.8, conditional on the} \\ \text{estimated hyperplane coefficients.} \end{array} \right.$

return (\mathbf{w})