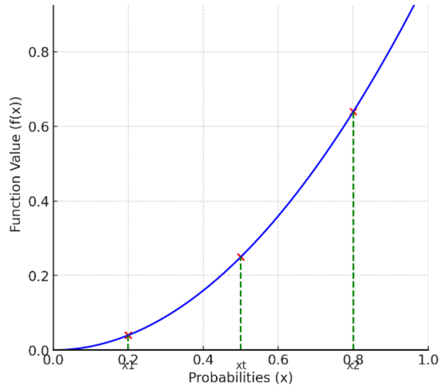

Algorithm 1: $f(x) = 1 - \tau$

Result: f(x*) = 1 - τ;

initialization $UCB(x_i)$ = 1, $LCB(x_i)$ = 0, $T_{x_i}(t)$ = 0 $\forall$ i;

while *At t = 1, 2,* $\cdots$ **do**

SML receives x_t - maximum softmax probability corresponding to a class;

if $LCB(x_t) > 1 - \tau$ **then**

accept the SML inference. Nothing learnt in this step;

end

if $UCB(x_t) < 1 - \tau$ **then**

offload and learn the ground truth. Update the estimate of the $\hat{f}(x)$. The estimate $\hat{f}(x)$ is the number of times the inference by the SML is correct / number of times this x_t is the SML output;

end

if $UCB(x_t) \geq 1 - \tau \geq LCB(x_t)$ **then**

offload and learn the ground truth. Update the estimate of the $\hat{f}(x)$;

end

Update the UCB and LCB for x_t;

$UCB(x_t) = \hat{f}(x_t) + \sqrt{\frac{log(1/\delta)}{T_{x_t}(t-1)}}$ (truncate to 1 if exceeds);

$LCB(x_t) = \hat{f}(x_t) - \sqrt{\frac{log(1/\delta)}{T_{x_t}(t-1)}}$ (truncate to 0 if diminishes);

Update the UCB and LCB for other x's using the information available;

$UCB(\hat{f}(x_1))_{x_1 \leq x_t} = min_{x_1 \leq x \leq x_t} \hat{f}(x) + \sqrt{\frac{log(1/\delta)}{T_{x_t}(t-1)}}$(truncate to 1 is exceeds);

$LCB(\hat{f}(x_2))_{x_2 \geq x_t} = max_{x_2 \geq x \geq x_t} \hat{f}(x) - \sqrt{\frac{log(1/\delta)}{T_{x_t}(t-1)}}$(truncate to 0 is diminishes);

Increment $T_{x_t}(t-1)$ by 1;

end
