Pseudo code

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1 Algorithm

Algorithm 1 Online Gradient Descent

Require: parameter η, loss function $f_1, ..., f_T$
Ensure: hypothesis $h_1, ..., h_T$
Initiate $h_1 = 0$
for t=1,...,T-1 **do**
    $h_{t+1} = h_t - \eta \nabla f_t(h_t)$
end for

Algorithm 2

Require: Budget B,access to online gradient descent(OGD),sequence of RSS data $d_1, , , d_T$
Ensure: the final hypothesis $\overline{h}$
for t=1,...,T **do**
    acquire hypothesis h_t from OGD
    post price p_t, drawn from $P(p_t > c) = F(c)$
    if the price get accepted **then**
        send $f_t(h_t)/(1 - F(c_t))$ to OGD
    else
        send 0 to OGD
    end if
end for

2 Notes

The form of f_t is $f_t(h_t) = l(h_t, d_t)$ means that a certain kind of relation between data d_t and hypothesis h_t, though we have not determine the specific form of f_t.