
Algorithm 1 Random / Greedy Functional Teaching

Input: Target f^* , initial f^0 , per-iteration pack size k , small constant $\epsilon > 0$ and maximal iteration number T .

Set $f^t \leftarrow f^0, t = 0$.

while $t \leq T$ and $\|f^t - f^*\|_{\mathcal{H}} \geq \epsilon$ **do**

The teacher selects k teaching examples:
Initialize the pack of teaching examples $\mathcal{K} = \emptyset$;
for $j = 1$ **to** k **do**

- (RFT) 1. Pick $\mathbf{x}_j^{t*} \in \mathcal{X}$ randomly;
- (GFT) 1. Pick \mathbf{x}_j^{t*} with the maximal difference between f^t and f^* :

$$\mathbf{x}_j^{t*} = \arg \max_{\mathbf{x}_i^t \in \mathcal{X} - \{\mathbf{x}_i^{t*}\}_{i=1}^{j-1}} |f^t(\mathbf{x}_i^t) - f^*(\mathbf{x}_i^t)|;$$

- 2. Add $(\mathbf{x}_j^{t*}, y_j^{t*} = f^*(\mathbf{x}_j^{t*}))$ into \mathcal{K} .

end

Provide \mathcal{K} to learners.

The learner updates f^t based on received \mathcal{K} :
 $f^t \leftarrow f^t - \eta^t \mathcal{G}(\mathcal{L}; f^t; \mathcal{K})$.

Set $t \leftarrow t + 1$.

end
