

1 Style 1.

Algorithm 1 Framework of ensemble learning for our system.

Input: The set of positive samples for current batch, P_n ; The set of unlabelled samples for current batch, U_n ; Ensemble of classifiers on former batches, E_{n-1} ;

Output: Ensemble of classifiers on the current batch, E_n ;

- 1: Extracting the set of reliable negative and/or positive samples T_n from U_n with help of P_n ;
 - 2: Training ensemble of classifiers E on $T_n \cup P_n$, with help of data in former batches;
 - 3: $E_n = E_{n-1} \cup E$;
 - 4: Classifying samples in $U_n - T_n$ by E_n ;
 - 5: Deleting some weak classifiers in E_n so as to keep the capacity of E_n ;
 - 6: **return** E_n ;
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2 Style 2.

Algorithm 2 An example for format For & While Loop in Algorithm

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1: for each  $i \in [1, 9]$  do
2:   initialize a tree  $T_i$  with only a leaf (the root);
3:    $T = T \cup T_i$ ;
4: end for
5: for all  $c$  such that  $c \in \text{RecentMBatch}(E_{n-1})$  do
6:    $T = T \cup \text{PosSample}(c)$ ;
7: end for;
8: for  $i = 1; i < n; i++$  do
9:   // Your source here;
10: end for
11: for  $i = 1$  to  $n$  do
12:   // Your source here;
13: end for
14: // Reusing recent base classifiers.
15: while  $(|E_n| \leq L_1) \text{ and } (D \neq \phi)$  do
16:   Selecting the most recent classifier  $c_i$  from  $D$ ;
17:    $D = D - c_i$ ;
18:    $E_n = E_n + c_i$ ;
19: end while
```

3 Style 3.

Algorithm 3 Conjugate Gradient Algorithm with Dynamic Step-Size Control

Input: $f(x)$: objective function; x_0 : initial solution; s : step size;

Output: optimal x^*

- 1: initial $g_0 = 0$ and $d_0 = 0$;
 - 2: **repeat**
 - 3: compute gradient directions $g_k = \nabla f(x_k)$;
 - 4: compute Polak-Ribiere parameter $\beta_k = \frac{g_k^T (g_k - g_{k-1})}{\|g_{k-1}\|^2}$;
 - 5: compute the conjugate directions $d_k = -g_k + \beta_k d_{k-1}$;
 - 6: compute the step size $\alpha_k = s / \|d_k\|_2$;
 - 7: **until** ($f(x_k) > f(x_{k-1})$)
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Algorithm 4 Test

Step 1.

Step 2.
