**Input**: An initial labelled set $\mathcal{L}$, an unlabelled pool $\mathcal{U}$ of $n$ examples, a stopping criterion $\mathcal{SC}$, a batch size $b$, a balancing parameter $w$

**Output**: A labelled dataset

Compute the similarity matrix $\mathcal{M}$ of $s(i, k)$ where $x_i, x_k \in \mathcal{L} \cup \mathcal{U}$;

Set $\alpha = \beta = \mu - 0.5 \times \delta$; $\mu$ and $\delta$ being the mean and standard deviation of the similarity matrix $\mathcal{M}$;

Calculate density for all the unlabelled examples $x_i, i \in I_u$

**while** $\mathcal{SC}$ *is not met* **do**

    $\mathcal{CS} = \emptyset$, *Selected* $= \emptyset$;

    Construct the candidate set $\mathcal{CS}$

    **while** $|\mathcal{CS}| = 0$ **do**

        Update $\beta$ ;

        Update $\mathcal{CS}$ ;

    **end**

    Rank examples in $\mathcal{CS}$ by descending density order;

    **foreach** $t, t = 1 \ldots b$ **do**

        **if** $|\mathcal{CS}| < b$ **then**

            *Selected* = *Selected* $\cup \mathcal{CS}$ ;

        **else**

            Select the top $b$ ranked examples from $\mathcal{CS}$ with highest density and add them into *Selected*;

        **end**

    **end**

    Label each example $x_i \in Selected$ ;

    $\mathcal{L} = \mathcal{L} \cup Selected$ , $\mathcal{U} = \mathcal{U}/Selected$ ;

**end**