Algorithm 2 RFID-data cleaning algorithm embedding sampling.

Require: a d-sequence $D = R_1, \cdots R_T$, a map M, the object maximum speed $v_{\max}$.

Ensure: a p-trajectory $p_1, \cdots, p_T$.

Forward phase:

$C(1) = \mathit{Cells}(R_1)$

for all $c \in C(1)$ **do**

  $p_1^{\text{fw}}(c) = \frac{1}{|C(1)|}$

for $t = 2$ to T **do**

  $C(t) = \{c \,|\, c \in \mathit{Cells}(R_t) \wedge \exists c' \in C(t-1) \text{ s.t. } \frac{d_{min}(c',c)}{\Delta} \leq v_{\max}\}$

  for all $c \in C(t)$ **do**

    $p_t^{\text{fw}}(c) = \sum_{c' \in C(t-1)} p_{t-1}^{\text{fw}}(c') \cdot p^{\text{mov}}(v \geq \frac{d_{min}(c',c)}{\Delta})$

  if $R_t = \emptyset$ **and** $|C(t)| > k$ **then**

    $t' = \min\{i \,|\, i \in [t+1..T] \text{ s.t. } R_i \neq \emptyset\}$;

    for all $c \in C(t)$ **do**

      $c' = \mathit{closestCell}(c, \mathit{Cells}(R_{t'}))$;

      $\tilde{p}_t^{bw}(c) = p^{\text{mov}}(v \geq \frac{d_{min}(c',c)}{(t'-t)\cdot\Delta})$

      $\tilde{p}_t(c) = p_t^{\text{fw}}(c) \cdot \tilde{p}_t^{bw}(c) \cdot h(\emptyset|c)$

    $C(t) = \text{top}_k(k, C(t), \tilde{p}_t)$

Backward phase: as in Algorithm 1

Project $p_1, \cdots, p_T$ on $\mathcal{L}$ and normalize

return $p_1, \cdots, p_T$