**Algorithm 1** randPatchEmbedding($\mathcal{D}$, $s$, $d$)

**Input:** a set of instances $\mathcal{D} = \{\mathbf{x}^i\}_{i=1}^m$ over r.v.s $\mathbf{X} = \{X_1, \ldots, X_n\}$, $s$ as the number of patches to extract, $d$ as the patch length,
**Output:** a set of embeddings $\mathcal{E} = \{\mathbf{e}^i\}_{i=1}^m, \mathbf{e}^i \in \mathbb{R}^k$
$\mathcal{R} \leftarrow \{\}$
**for** $i = 1, \ldots, s$ **do**
    $\mathbf{x}^{\text{rand}} \leftarrow$ selectRandomSample($\mathcal{D}$)
    $\mathbf{r}^i \leftarrow$ extractRandomPatch($\mathbf{x}^{\text{rand}}, d$)
    $\mathcal{R} \leftarrow \mathcal{R} \cup \{\mathbf{r}^i\}$
$\theta \leftarrow$ learnDensityEstimator($\mathcal{R}$)
$\mathcal{E} \leftarrow \{\}$
**for** $i = 1, \ldots, m$ **do**
    $j \leftarrow 0$
    **for each** patch $\mathbf{q}^i, |\mathbf{q}^i| = d$ in $\mathbf{x}^i$ **do**
        $e_j^i = p_\theta(\mathbf{q}^i)$
        $j \leftarrow j + 1$
    $\mathcal{E} \leftarrow \mathcal{E} \cup \{\mathbf{e}^i\}$
**return** $\mathcal{E}$