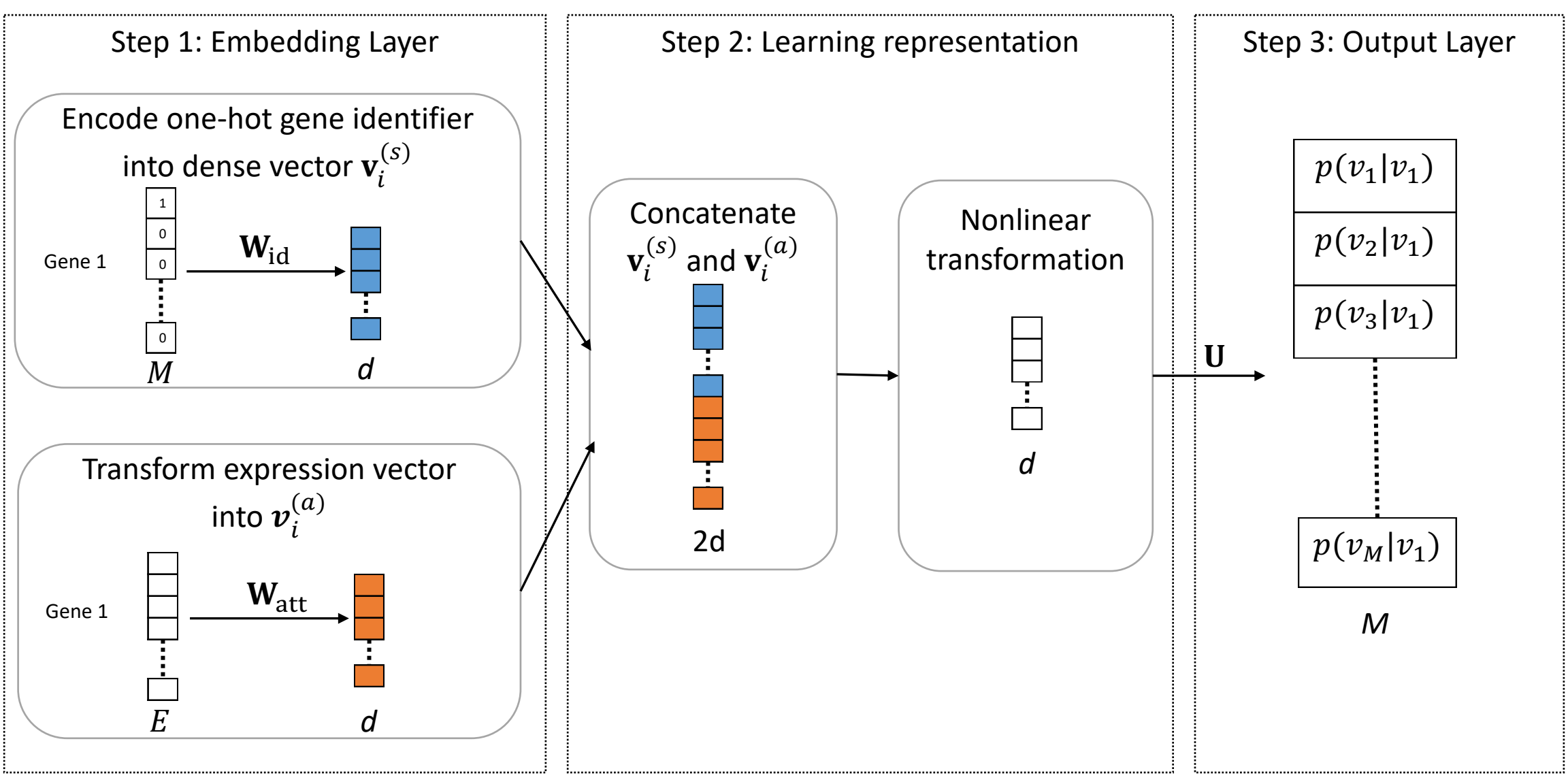
Step 1: Embedding Layer
Encode one-hot gene identifier into dense vector $\mathbf{v}_i^{(s)}$
Gene 1
1
0
0
0
$\mathbf{W}_{\text{id}}$
M
d
Transform expression vector into $\boldsymbol{v}_i^{(a)}$
Gene 1
$\mathbf{W}_{\text{att}}$
E
d
Step 2: Learning representation
Concatenate $\mathbf{v}_i^{(s)}$ and $\mathbf{v}_i^{(a)}$
2d
Nonlinear transformation
d
Step 3: Output Layer
$\mathbf{U}$
$p(v_1|v_1)$
$p(v_2|v_1)$
$p(v_3|v_1)$
$p(v_M|v_1)$
M