
Algorithm 1: Routing Algorithm

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1 procedure ROUTING( $u_{j|i}, r, l$ ) ;  
2 for all capsule  $i$  in layer  $l$  and capsule  $j$  in layer  $l+1$ : do  
3    $b_{i|j} \leftarrow 0$  ;  
4 for  $r$  iterations do  
5   for all capsule  $i$  in layer  $l$  do  
6      $c_i \leftarrow \text{softmax}(b_i)$   
7   for all capsule  $j$  in layer  $l+1$  do  
8      $s_j \leftarrow \sum_i c_i u_{j|i}$   
9   for all capsule  $j$  in layer  $l+1$  do  
10     $\mathbf{v}_j \leftarrow \text{squash}(s_j)$   
11  for all capsule in layer  $l$  and capsule  $j$  in layer  $(l+1)$  do  
12     $b_{ij} \leftarrow b_{ij} + \mathbf{u}_{j|i} \cdot \mathbf{v}_j$   
13  return  $\mathbf{v}_j$ 
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