Algorithm 1: Graph construction

Input: $G(V, \phi, \phi)$, nn - number of neighbors
Output: $G(V, E, W)$

$search\_occurence \leftarrow []$
$scan\_range \leftarrow []$
$flann() \leftarrow V$ ▷ Search space is formed
$raw\_E \leftarrow flann.ann\_search(nn)$
for $i \in V$ **do**
  for $j \in raw\_E[i]$ **do**
    if $j \notin neighbor\,of\,i$ **then**
      $E \mathrel{+}= (i, j)$
      $W_{i,j} \leftarrow \boldsymbol{metric}(i, j)$
      ▷ j added to i $E \mathrel{+}= (j, i)$ ▷ undirected graph
      $W_{j,i} \leftarrow W_{i,j}$
      $search\_occurence[j] += 1$ ▷ Essential for **Consideration 1**
      $scan\_range[j] += distance(i, j)$ ▷ Key in **Consideration 2**
    end
  end
end