Algorithm 1: Nearest Neighbor Algorithm

Data: $X_{Train}, X_{Test}, Y_{Train}$
Result: Classification prediction forX_{Test}, $\hat{Y_{Test}}$
begin
  foreach X_{Test} **do**
    foreach X_{Train} **do**
      tmp $\leftarrow$ Calculate difference of the two matrix(Element-wise)
      D[j] $\leftarrow$ Calculate L_p-distance(tmp)
    Find idx_{Train} *s.t.* D$[idx_{Train}]$ = $\underset{j}{\text{argmin}}$ D[i,j]
    $\hat{Y_{Test}}$[i] $\longleftarrow$ $Y_{Train}[idx_{Train}]$
    Remove (D, idx_{Train}), release memory space
  return $\hat{Y_{Test}}$