

## Audio – Distance-based classification

**K-nearest neighbor** the input consists of the  $k$  closest training examples in the feature space. The output depends on whether  $k$ -NN is used for classification or regression:

In *k-NN classification*, the output is a class membership. An object is classified by a majority vote of its neighbors, with the object being assigned to the class most common among its  $k$  nearest neighbors ( $k$  is a positive integer, typically small). If  $k = 1$ , then the object is simply assigned to the class of that single nearest neighbor.

In *k-NN regression*, the output is the property value for the object. This value is the average of the values of its  $k$  nearest neighbors.

