

## Nearest means algorithm

### Input:

1. Training data  $T$  of dimension  $n$  by  $m$  ( $n$  rows and  $m$  columns)
2. Training labels  $L$ . Each label  $l_i$  is an integer indicating the class that row  $i$  belongs to.
3. Test data  $E$  of dimension  $n'$  by  $m$

### Algorithm:

1. Training: Compute the mean  $m_j$  of each class.
2. Prediction: Assign point  $x'_i$  to class  $j$  if  $x'_i$  is closest to the mean of class  $j$ . In other words

$$\text{class}(x'_i) = \underset{j}{\operatorname{argmin}}(\|m_j - x'_i\|)$$