

# Types of Learning

1.) unsupervised learning: descriptive model  
unlabeled data; find lower dimensional  
representation / model of data  $P(x | D)$

2.) Supervised learning: predictive model  
Mapping from input to output given data  $D$

$$\{ (x_i, y_i) \}_{i=1}^N := D$$

$p(y | x, D)$  or  $f(x, D) \rightarrow$  model as function  
 $\hookrightarrow$  model as a probability distribution

3.) Reinforcement, semi-supervised...