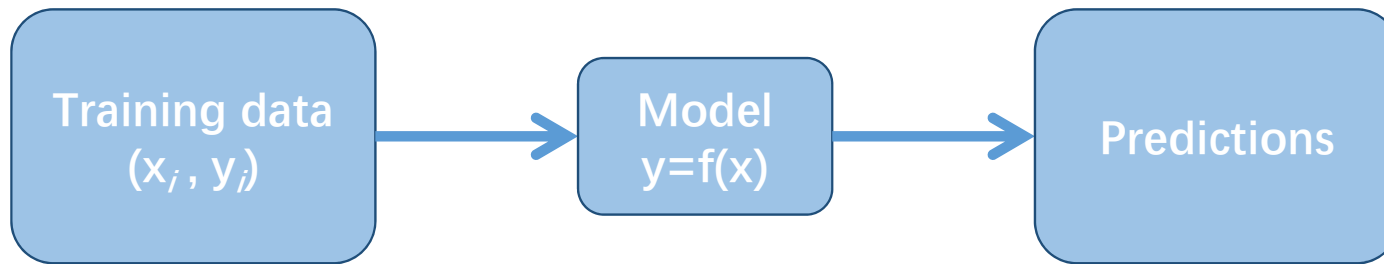


Background

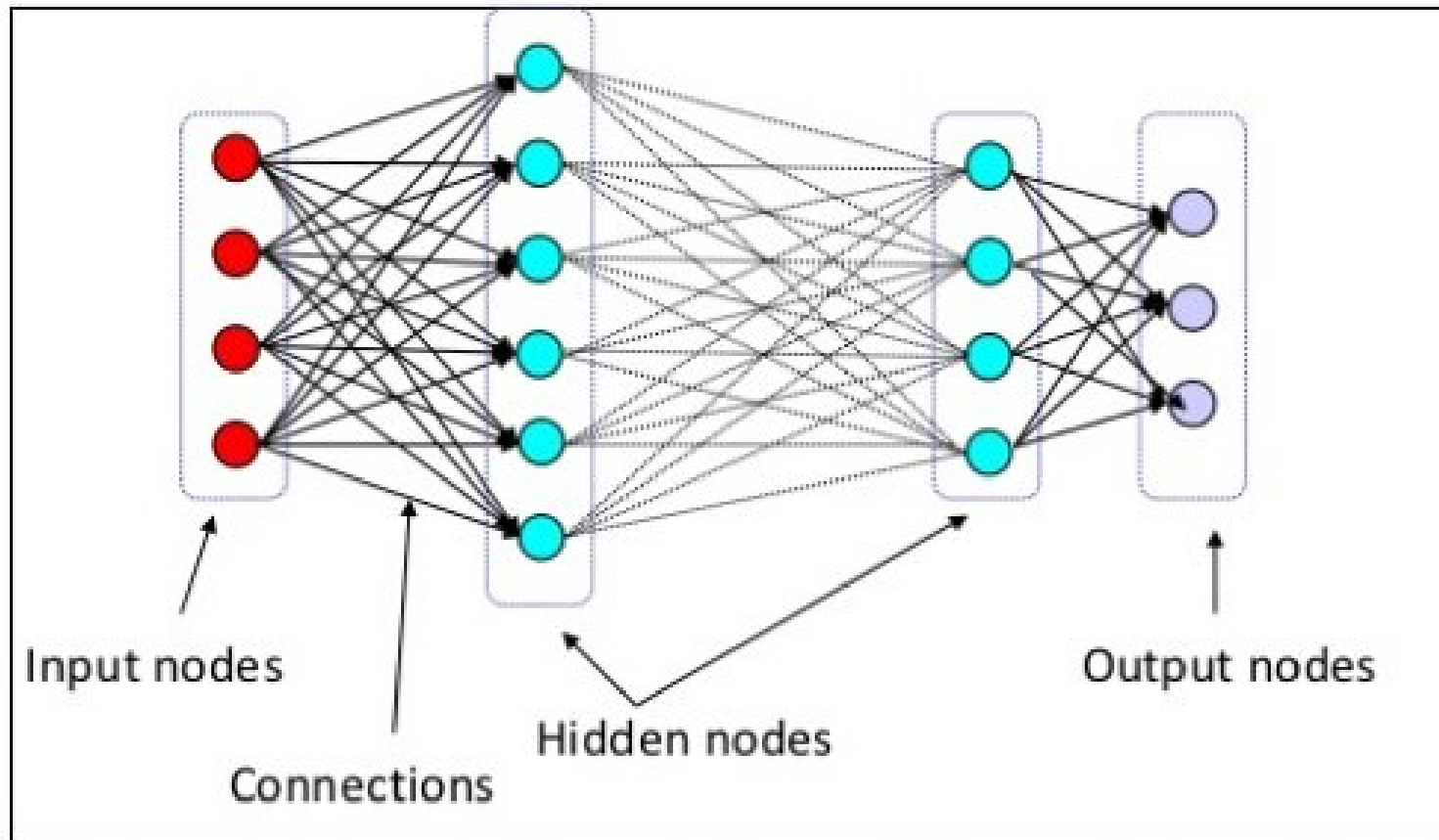
Machine Learning: Supervised Learning



Need a lot of labeled data



Deep Learning

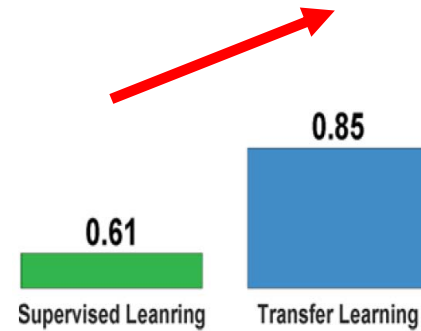
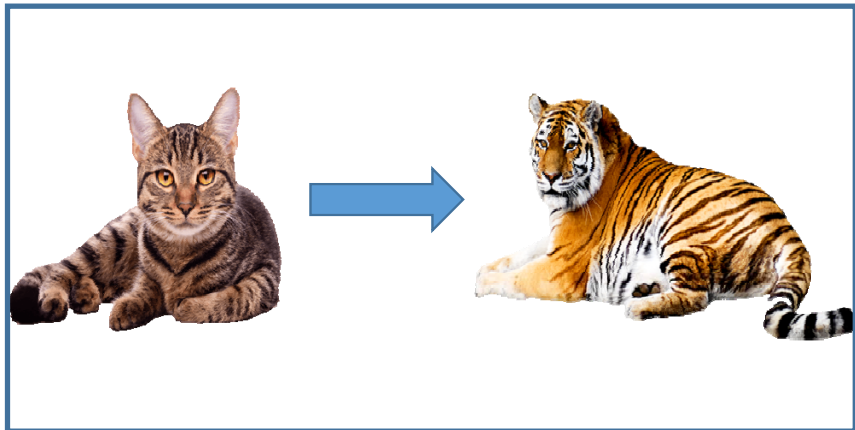


Transfer Learning

In a learning task, the number of labeled data is very limited

Solution: Transfer learning

It utilizes a large amount of labeled data from other related task(s).

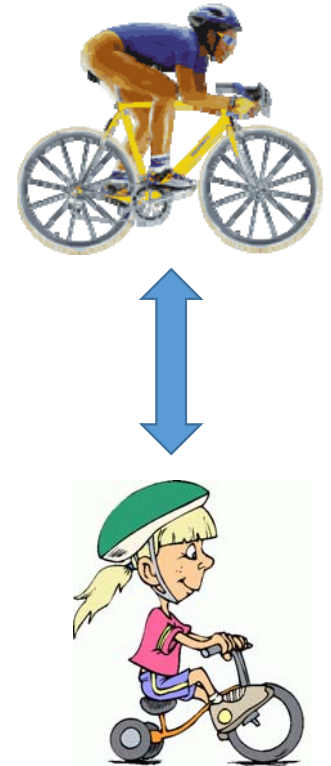
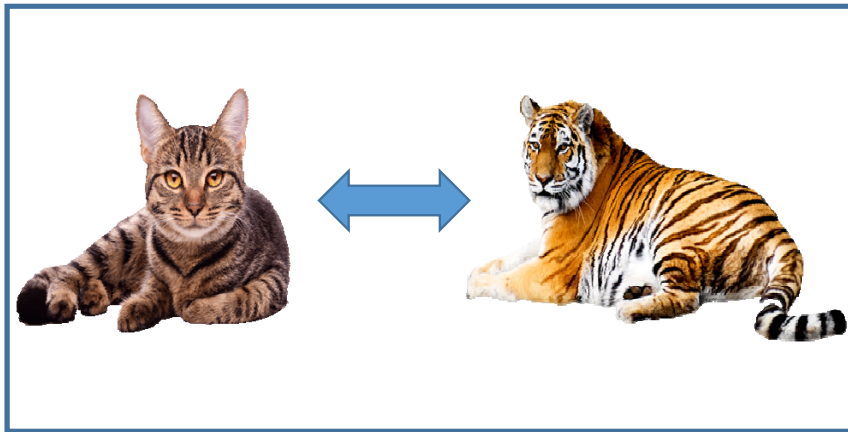


Multi-Task Learning

In several learning tasks, the numbers of labeled data are very limited.

Solution: Multi-Task Learning

It learns multiple learning tasks jointly.



Reinforcement Learning

- Characteristics
 - There is only a reward signal
 - Reward signal is delayed
- Mathematical Models
 - Markov Decision Process (MDP)
 - Partially Observable MDP

