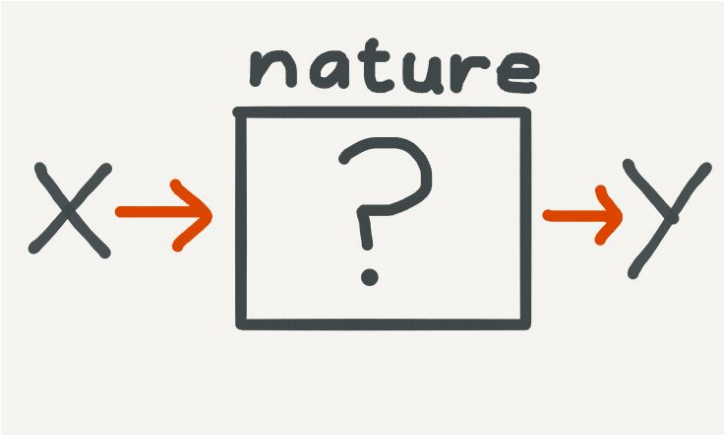
Everything you need to know about Machine Learning in 10 minutes

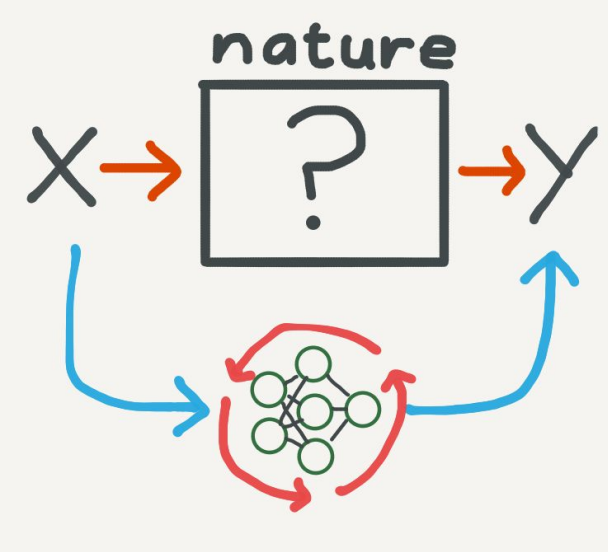
Chris Nemeth (Lancaster)

Trying to understanding nature

Imagine a simple system with inputs **X** and outputs **Y**.



*Can we learn the relationship between **X** and **Y**?*



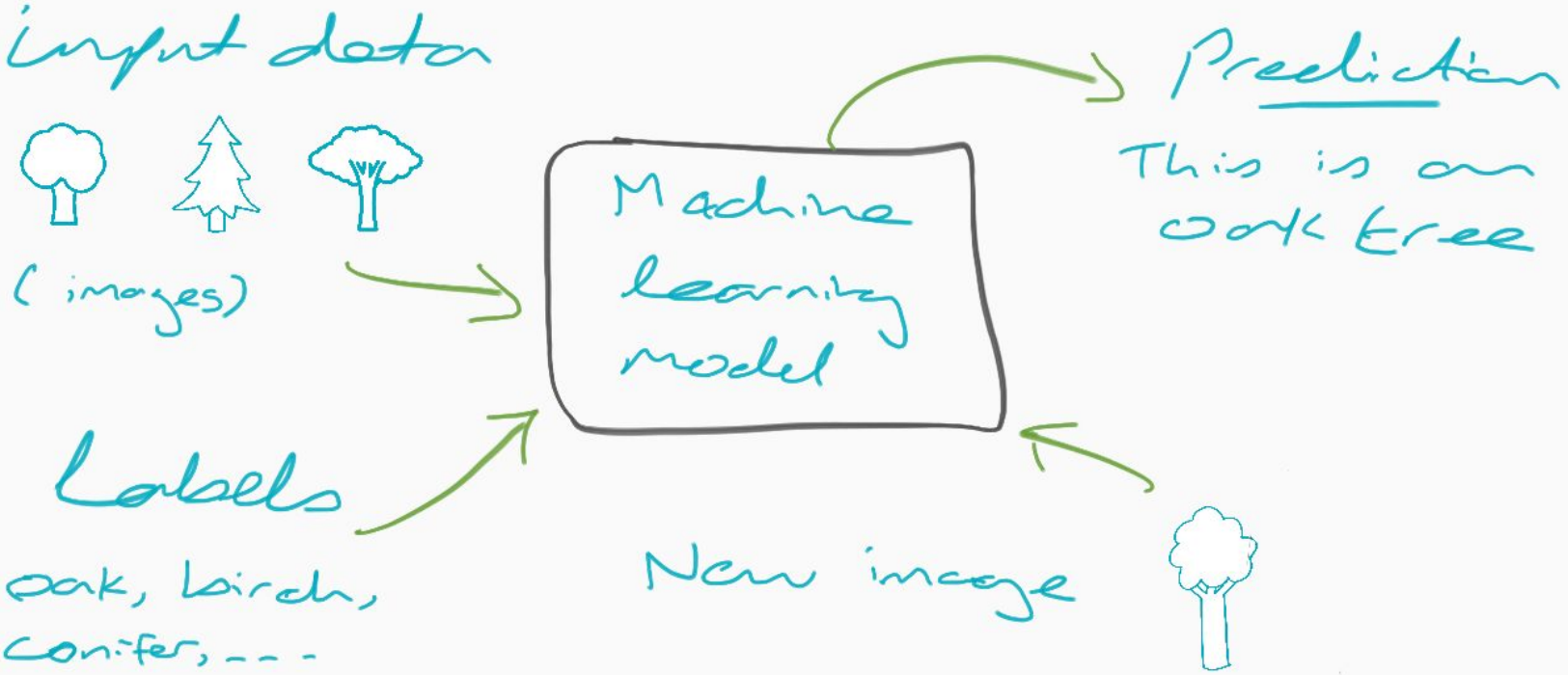
The three pillars of machine learning

SUPERVISED LEARNING

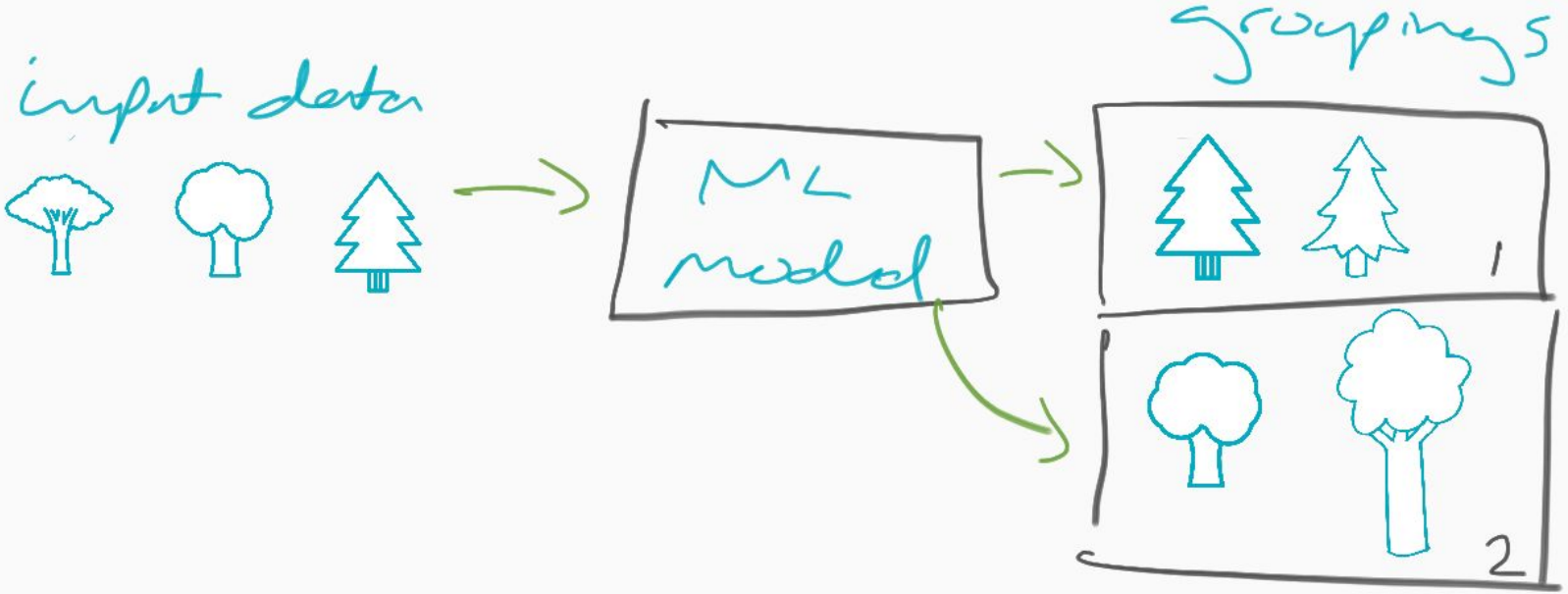
UNSUPERVISED LEARNING

REINFORCEMENT LEARNING

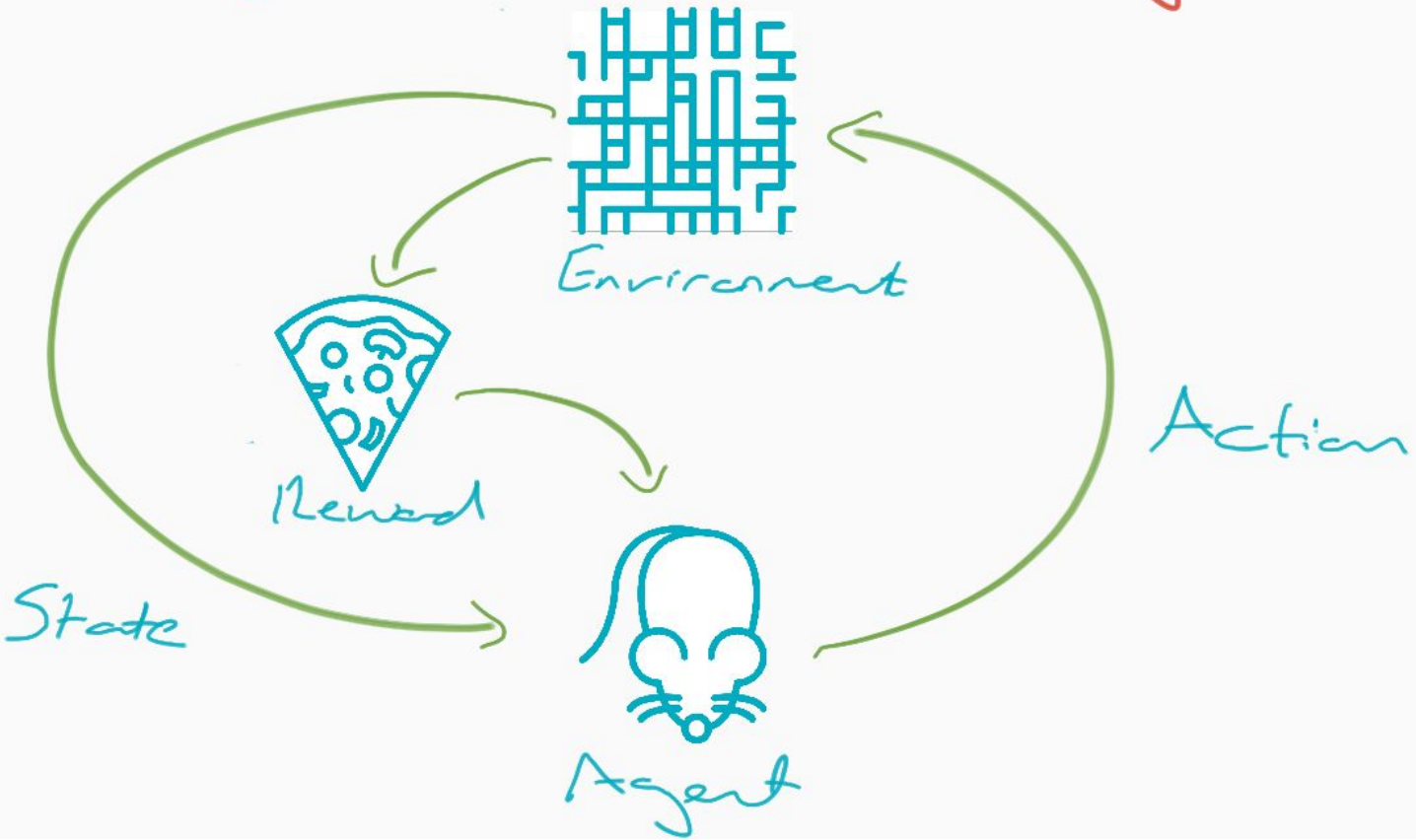
Supervised learning



Unsupervised learning



Reinforcement learning



Popular Machine Learning Algorithms

Supervised learning:

- Linear regression
- Support vector machines
- Random forests
- Neural networks

Unsupervised learning:

- K-means clustering
- Principal component analysis
- Autoencoders

Reinforcement learning:

- Q-Learning
- Policy optimisation
- Actor-Critic models

Final thoughts:

- Lots of algorithms available - which one suits your problem?
- Machine learning *cheat sheets* can help you decide which algorithm you should use.

Microsoft Azure Machine Learning: Algorithm Cheat Sheet