What is Unsupervised Learning?

Applications

- Recommend purchases or videos
- Group customers based on attributes
- Genetic and species grouping
- Distinguish different kinds of tissues

Applications

- Make a customer persona
- Will this customer buy Item B if they bought Item A?
- Detect bot activity

Applications

- Recognize handwriting
- Recognize speech
- Create speech
- Tag parts of speech
- Translate text

Machine Learning:

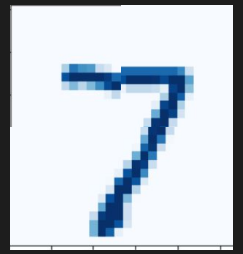
- Supervised Learning
- Unsupervised Learning
- Reinforcement Learning

Supervised Learning

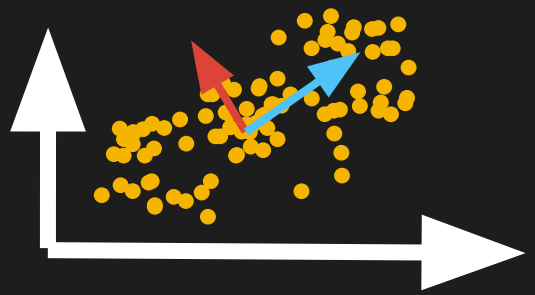
- Type of machine learning
- Learns a function to map an input to an output
- Uses sample input-output pairs

Unsupervised Learning

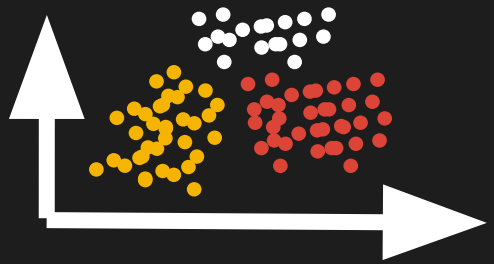
- Type of machine learning
- Looks for new patterns in data with no pre-existing labels
- Minimal human supervision

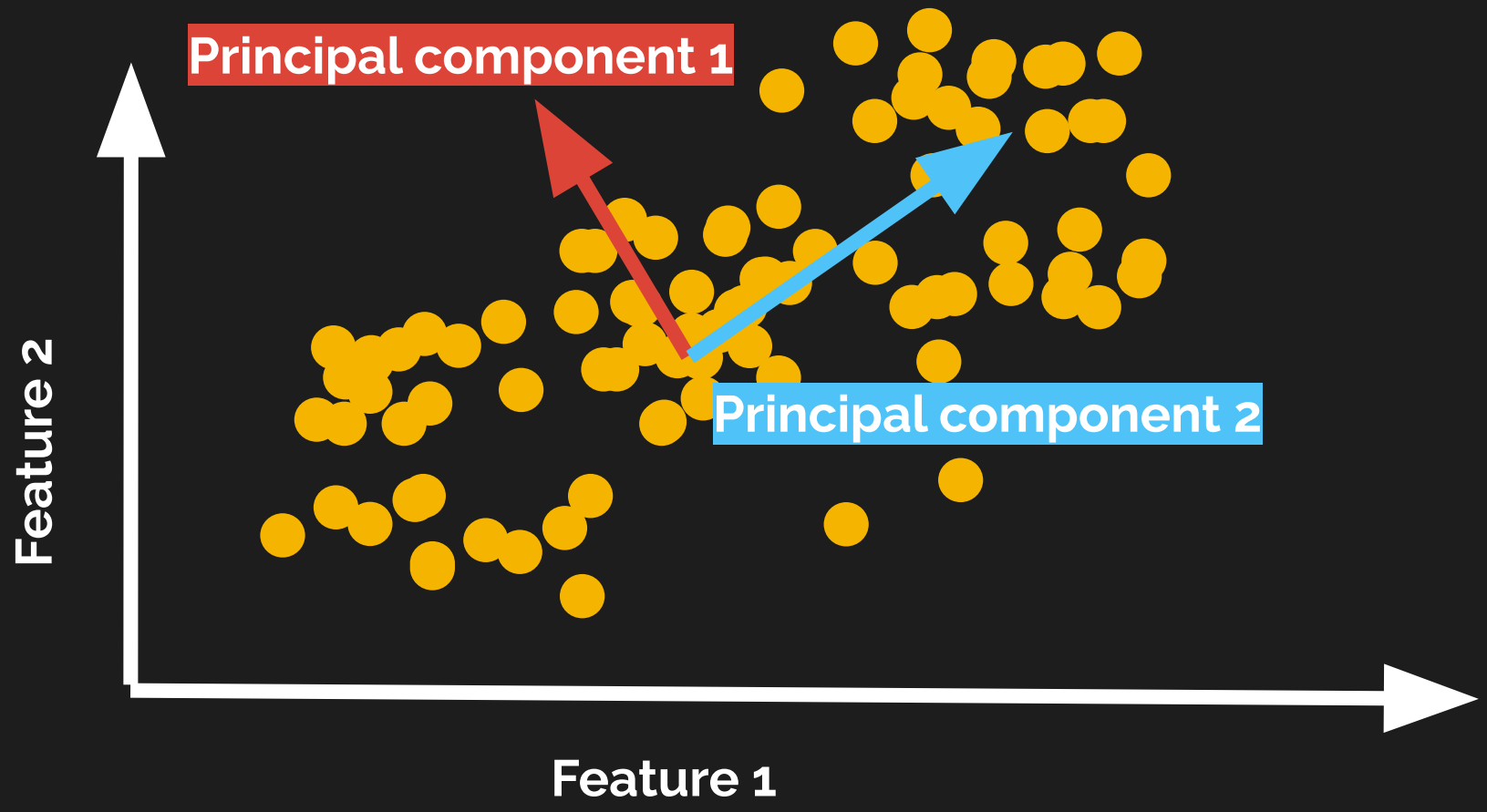


Unsupervised Learning

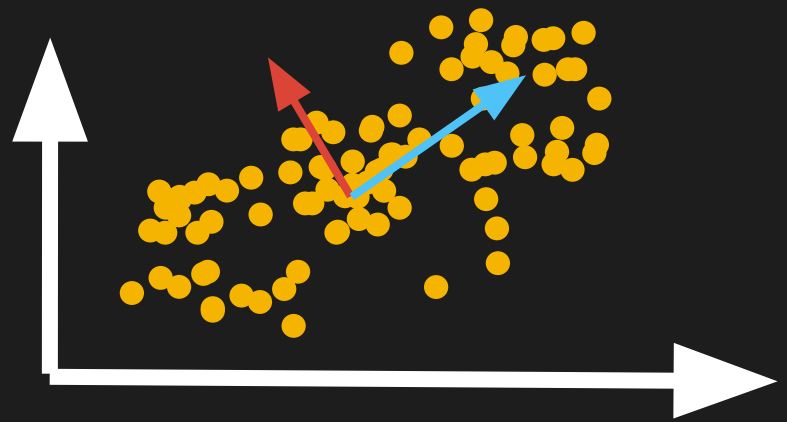


1. Principal component analysis
2. Cluster analysis



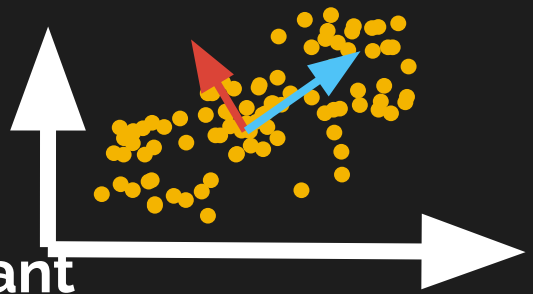

Principal component 1
Principal component 2
Feature 2
Feature 1

Principal component analysis



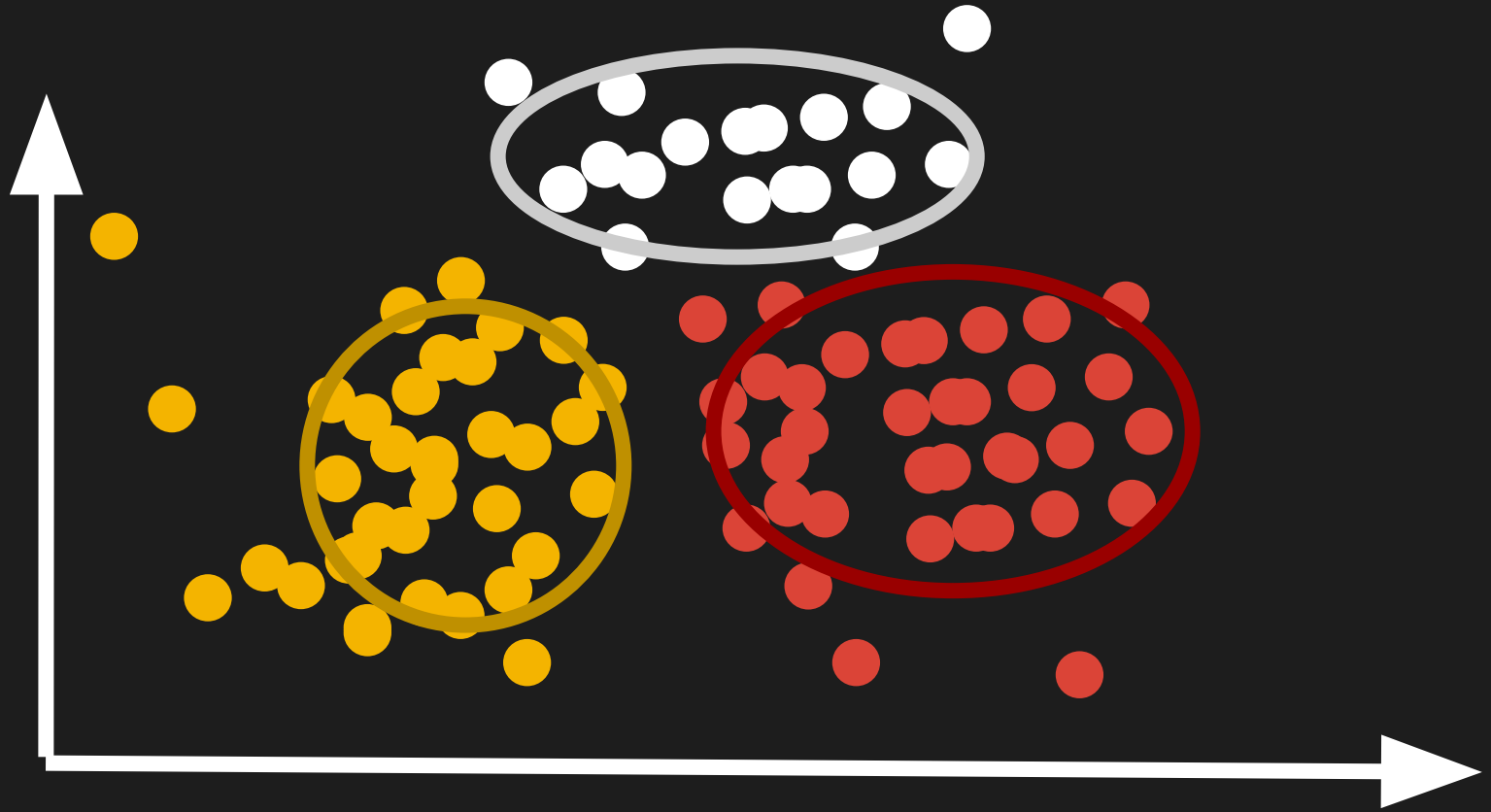
- Data is noisy
- Dimensionality reduction
- Get each data point's first few important components

Principal component analysis

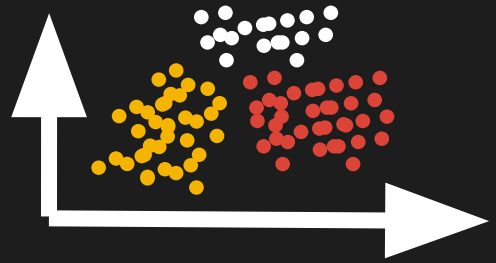


- Get each data point's first few important components
- Creates lower-dimensional data
- Preserves as much of the data's variation as possible

Cluster Analysis



Cluster Analysis



- finds commonalities in data
- reacts based on presence or absence of the commonalities in every new input
- helps detect data points that do not fit into any group

What is Unsupervised Learning? ✓