



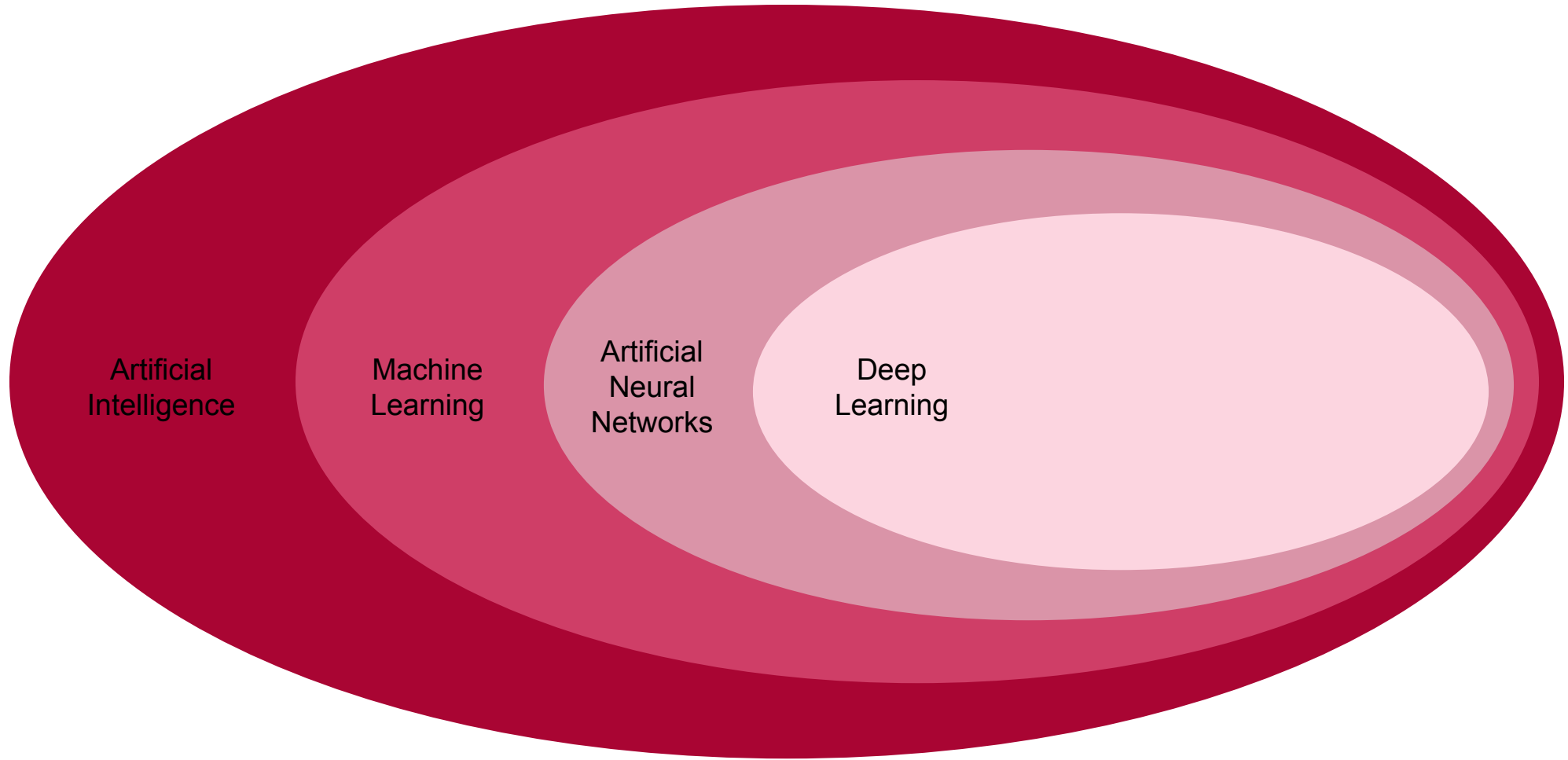
Designing and Building AI Products and Services

Office Hours – Module 2

February 6 2024



AI Technology Fundamentals — Machine Learning

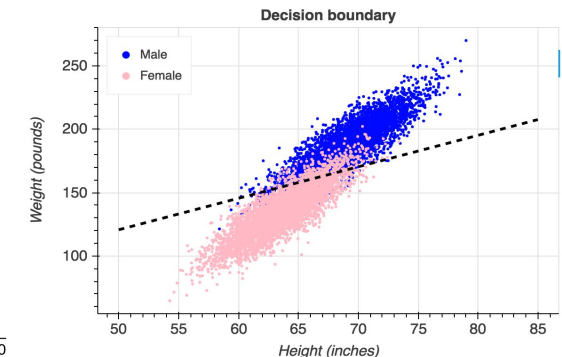
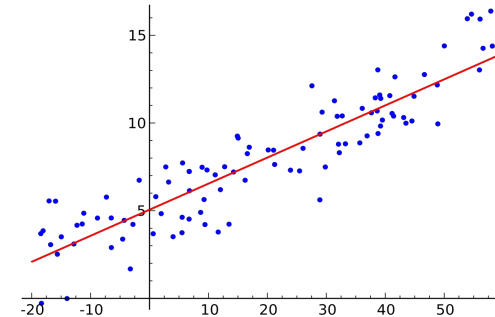


Types of Machine Learning Tasks

Supervised Learning

Data points are **labeled** and we want to **predict** the labels of new data points.

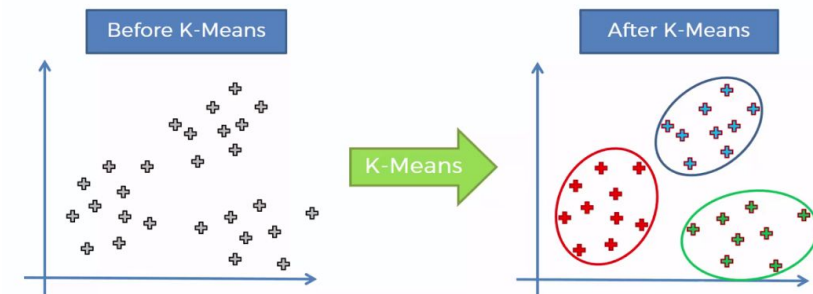
- **Regression**: real-valued labels
- **Classification**: categorical labels



Unsupervised Learning

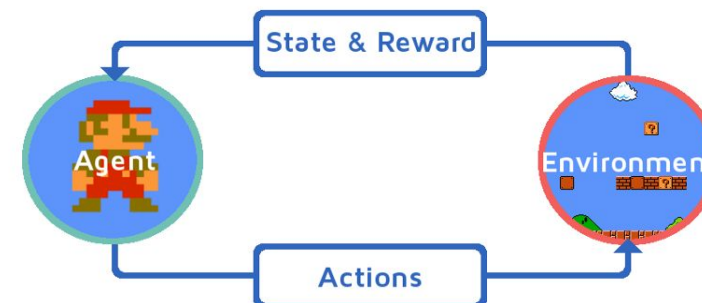
Data points are **not labeled** and we want to **find patterns** in the dataset.

- **Clustering**: separate the data points into groups
- **Dimensionality reduction**: find a compressed representation of data



Reinforcement Learning

An agent learns how to **control** a system by interacting with it and observing the consequences of such interactions.



Types of Machine Learning Models

Supervised Learning

- Regression:
 - Linear regression
 - Decision trees
- Classification:
 - Logistic regression
 - Decision trees
 - Support Vector Machines (SVM)
 - Bayesian inference

Unsupervised Learning

- Clustering:
 - K-means
 - Hierarchical clustering
- Dimensionality reduction:
 - Principal Component Analysis (PCA)

Questions?