Introduction to Artificial Intelligence and Machine Learning

Artificial Intelligence is a branch of computer science dealing with the simulation of intelligent behavior in computers. Machines mimic cognitive functions such as learning and problem solving.

Machine learning is the study of programs that are not explicitly programmed, but instead these algorithms learn patterns from data.

Deep learning is a subset of machine learning in which multilayered neural networks learn from vast amounts of data.

History of AI

AI has experienced cycles of AI winters and AI booms.

AI solutions include speech recognition, computer vision, assisted medical diagnosis, robotics, and others.

Modern AI

Factors that have contributed to the current state of Machine Learning are: bigger data sets, faster computers, open source packages, and a wide range of neural network architectures.

Machine Learning Workflow

The machine learning workflow consists of:

- Problem statement
- Data collection
- Data exploration and preprocessing
- Modeling
- Validation
- Decision Making and Deployment

This is a summary of the common taxonomy for data in open source packages for Machine Learning:

- target: category or value you are trying to predict
- features: explanatory variables used for prediction

- example: an observation or single data point within the data
- label: the value of the target for a single data point