→ Machine Learning in Robotics

Key concepts: experience (data), task, performance measure and improvement.

↳ Supervised learning

Method where model is trained on labeled dataset (from examples) with the goal of making predictions of unseen data. Model can be trained on examples of input-output, input can be sensors and the output are actions for robot to take

↳ Unsupervised learning

Model is trained on unlabeled dataset with the goal of discovering patterns or structure in the data. There is no specific output or target variable the model is trying to predict

↳ Evolutionary learning

Inspired by the process of natural evolution
A population of potential solutions (agents) is created and evolved over time.

Generations can evolve and better agents 'reproduce' on their genetic information. Objective is to get better fitness values.

↳ Reinforcement learning

How agents learn by interacting with the environment to maximize the notion of cumulative reward.

The agents learn by interacting with environment and receiving feedback in the form of rewards and penalties which are used to update its policy and improve performance over time.