Bociat Daniel-Tiberiu

1) Explain how Machine Learning (ML) is related to Internet of Things.

Applying ML techniques to dig into large amounts of data can help discover patterns that were not immediately apparent. This is called data mining.

IoT generates large amounts of data which then are used by Machine Learning algorithms to generate insights from it.

2) Describe, in general level, an IoT application that uses ML. You don't need to go into technical details, just a brief description of the system.

Self-driven cars have multiple cameras, sensors and embedded systems that gather information which is processed by complex ML algorithm which help it make a decision.

3) What types of ML systems are there (3 categories) ?

There are multiple ML systems, based on multiple criterias.

Based on wether they are or are not trained with human supervision we have 3 categories: *supervised learning*, *unsupervised learning* and *reinforcement learning.*

In **supervised learning,** the training set you feed to the algorithm includes the **desired solutions**, called **labels.**

In **unsupervised learning** the training data is unlabeled. The system tries to learn without a teacher.

In **reinforcement Learning,** the learning system, called an *agent* in this context, can observe the environment, select and perform actions, and get *rewards* in return (or *penalties* in the form of negative rewards).

It must then learn by itself what is the best strategy, called a *policy*, to get the most reward over time. A policy defines what action the agent should choose when it is in a given situation.