

Machine Learning And Deep Reinforcement Learning Applied To Cooperative, Connected And Automated Mobility

Abstract

Machine learning (ML) and deep reinforcement learning (DRL) have the potential to bring about significant impacts in automation across various industries and domains. The number of cooperative, connected and automated vehicles (CCAVs) in urban areas will gradually increase in the near future.

As a consequence, mixed traffic made of both regular human driven and CCAVs will likely be a typical scenario over the next few years. Connected and automated vehicles can benefit the whole traffic experience by preventing collisions and optimizing traffic waves, by developing and implementing innovative services.

The talk will explain how ML and DRL techniques can be applied for a full integration of CCAVs in the real traffic for transportation of both passengers and goods. The goal is providing benefits to all citizens and positive impacts for society are: i) safety (i.e., reducing the number of road accidents caused by human error; ii) environment (i.e., reducing transport emissions and congestion by smoothening traffic flow and avoiding unnecessary trips); iii) inclusiveness (i.e., ensuring inclusive mobility and good access for all).