

Online Learning & Game Theory: Repeated Auctions

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Mots-clefs : Online Learning, Game Theory, Repeated Auctions

This talk will be divided in two main parts. In the first part, I will recall basic concepts of machine learning, and more precisely online learning, and some of their connections with optimization and/or statistics. I will give the optimal guarantees that an algorithm can achieve (by showing lower bounds) and which algorithms can achieve them.

In the second part, I will show how these techniques can be applied to solve practical problems in game theory. For instance, we will see how repeated auctions, that are motivated by online advertisement displays, can be solved by adapting those tools. In that problem, an agent can repeatedly bid on sequential auctions for similar goods, but unlike in traditional auction theory, the value of the good is unknown and must be learned as fast as possible.