Title:

Introduction to Theory of Online Decision-Making and Its Applications to Communication Engineering

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Abstract:

We will review the theory of online decision-making, including competitive analyses of online algorithms in theoretical computer science and online convex optimization, as well as bandit theory in machine learning literature. We will clarify what theoretical guarantees are obtained for various tasks and conditions. Although these theories were studied for theoretical motivations, they have increasingly many applications, such as online recommendation tasks. In particular, we will show applications for online decision-making problems in 5G/6G wireless communication tasks.

Bio:

Kohei Hatano received a Ph.D. from Tokyo Institute of Technology in 2005. Currently, he is a professor at Department of Informatics in Kyushu University. He is also the leader of the Computational Learning Theory team at RIKEN AIP. His research interests include machine learning, computational learning theory, online learning and their applications.