Bandit problems

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Abstract

Reviewing bandit papers

1 Introduction

We review the papers by (Alon *et al.* , 2014; Hazan & Kale, 2009; Bertsimas & Niño-Mora, 2000) and describe the main ideas and connections.

Related Work: The paper by (Alon *et al.* , 2014) uses graphs to represent how much information an agent recieves about other actions after choosing to take an action at every round.

(Hazan & Kale, 2009) describes a novel setting for non-stochastic bandits where bounds are given with respect to the total variation of a reward sequence.

(Bertsimas & Niño-Mora, 2000) describes a series of LP-relaxations for approximately solving the restless bandit problem.

References

Alon, Noga, Cesa-Bianchi, Nicolò, Gentile, Claudio, Mannor, Shie, Mansour, Yishay, & Shamir, Ohad. 2014. Nonstochastic Multi-Armed Bandits with Graph-Structured Feedback. *CoRR*, **abs/1409.8428**.

Bertsimas, Dimitris, & Niño-Mora, José. 2000. Restless Bandits, Linear Programming Relaxations, and a Primal-Dual Index Heuristic. *Operations Research*, **48**(1), 80–90.

Hazan, Elad, & Kale, Satyen. 2009. Better Algorithms for Benign Bandits. *Pages 38–47 of: Proceedings of the Twentieth Annual ACM-SIAM Symposium on Discrete Algorithms*. SODA '09. Philadelphia, PA, USA: Society for Industrial and Applied Mathematics.