Camera Ready Summary

Conference Name

2024 International Conference on Signal Processing and Communications (SPCOM)

Track Name

Contributed papers

Paper ID

44

Paper Title

Constrained Best Arm Identification in Grouped Bandits

Abstract

We study a grouped bandit setting where each arm comprises multiple independent sub-arms referred to as attributes. Each attribute of each arm has an independent stochastic reward. We impose the constraint that for an arm to be deemed feasible, the mean reward of all its attributes should exceed a specified threshold. The goal is to find the arm with the highest mean reward averaged across attributes among the set of feasible arms in the fixed confidence setting. We propose a confidence interval-based policy to solve this problem and provide instance-dependent analytical guarantees for the policy. We compare the performance of the proposed policy with that of two suitably modified versions of action elimination via simulations.

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