

Follow the perturbed approximate
leader for solving semi-bandit
combinatorial optimization

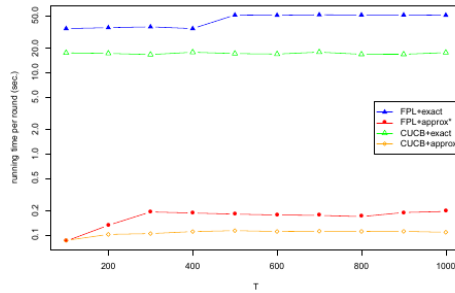
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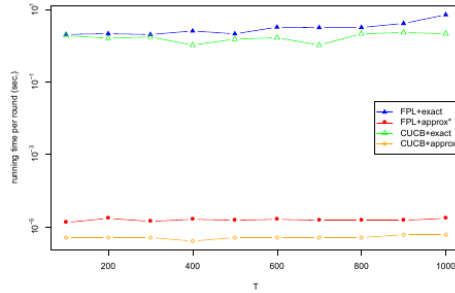
Problems & Ideas

- Problem of solving adversarial combinatorial semi-bandit efficiently if the underlying combinatorial optimization problem is NP-hard
- Ideas:
 - Using an approximation algorithm instead of the exact optimization algorithm as the offline oracle in the FPL approach
 - Perturbing the collected data by adding nonnegative random noise

Main Contributions

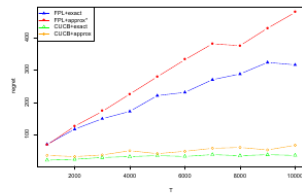


(a) the shopping problem

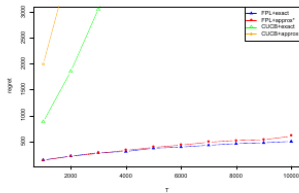


(b) the vertex cover problem

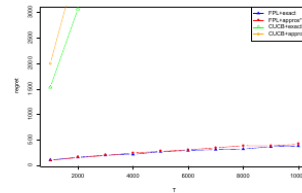
Fig. 1: the running time per round (in log scale) of different algorithms



(a) stochastic adversary

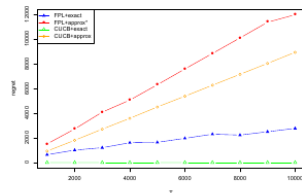


(b) adversary against history

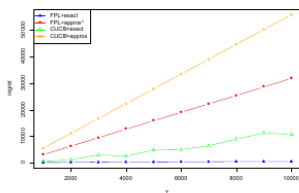


(c) adversary against future

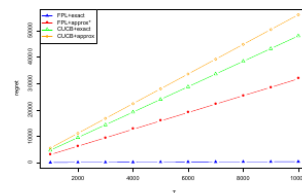
Fig. 2: Regret to the shopping problem



(a) stochastic adversary



(b) adversary against history



(c) adversary against history

Fig. 3: Regret to the vertex cover problem