Best-Arm Identification

Suppose, you want to find a batsman among 10 batsmen, with few balls/trials as soon as possible with success rate 90%

Best-Arm Identification

- Treat each batsmen as an arm a, such that their average performance (hit rate) is given by μ_a
- At every round t,
  - Choose an arm (batsman) a_t and play a ball
  - Observe their performance in terms of reward $r_t \sim D(\mu_{a_t})$
  - If you are confident at round τ_δ, announce the best batsman $\hat{a}_t$, else continue
- Objective: Minimise the number of samples (balls) $\mathbb{E}[\tau_\delta]$ such that the error is small i.e. $\mathbb{P}(\hat{a}_{\tau_\delta} \neq \arg\max_a \mu_a) \leq \delta$