Explore v Exploit: Dawn of Multi-Armed Bandits

Abstract: This talk will serve as an introduction to the multi-armed bandit, a type of sequential experiment where the assigned treatment can be decided on a trial-to-trial basis. We will look at the overall decision-making process of when to exploit a profitable-looking avenue versus when to explore other possibilities. Different traditional frequentist algorithms for this process will be introduced, and their performance will be assessed via simulations. We will also consider what might be added to the field by incorporating some additional experimental design considerations.