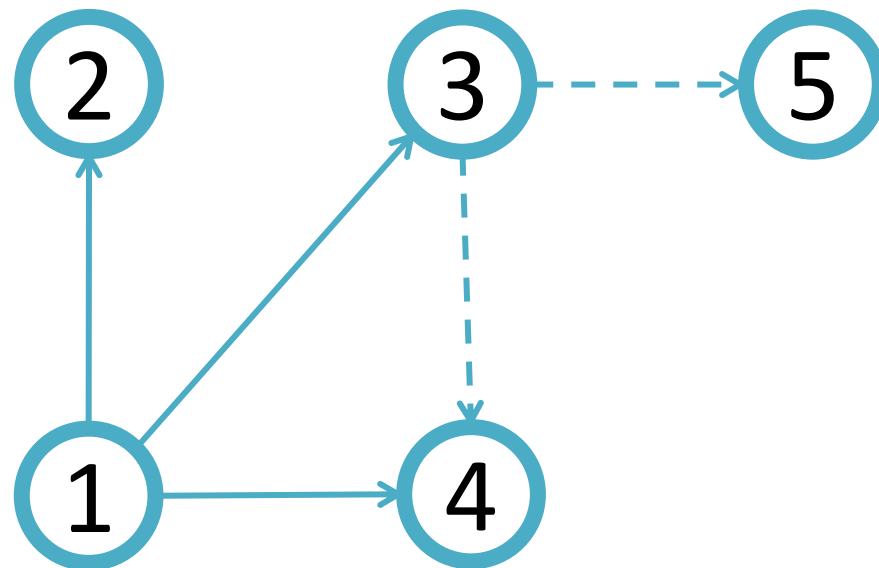


# Information Directed Sampling for Stochastic Bandits with Graph Feedback

Fang Liu<sup>1</sup>, Swapna Buccapatnam<sup>2</sup> and Ness Shroff<sup>1</sup>

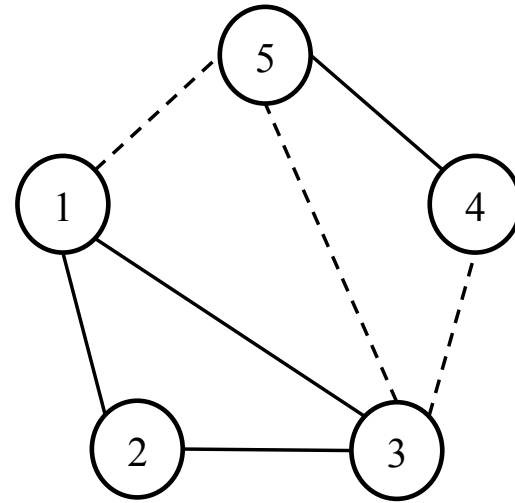
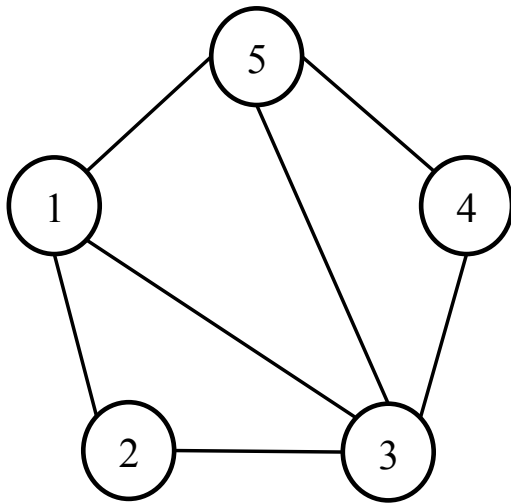
- Bandits with graph feedback
  - Example: Your friend is interested in ..., are you interested?



*Side observations matter!*

# Information Directed Sampling for Graphical Bandits

- Information Directed Sampling – generalize Thompson Sampling.
- IDS offers a way of **exploiting the graph information**.
- Regret guarantee depends on **graph complexity**, instead of  $K$ , # of arms.
  - Deterministic graph: **clique cover number**



- Random graph:  **$K$ /expected # of observations.**
- Side observations => reducing learning complexity