

The recent developments of dependency graphs

Rui Zhang

The dependency graphs have been widely used in probability via the Stein's method, cumulants, etc. to establish normal or Poisson approximation, or to obtain concentration results. They are also heavily used in combinatorics, such as the Lovász local lemma, cluster expansion, Janson's inequality, etc. I will talk about some recent developments of the dependency graphs, including some concentration bounds, probabilities of the non-occurrences of events (e.g., probability of no small subgraphs, linearity of hypergraphs, etc.), and some variants of dependency graph model.