Algorithmic Problems in Discrete Choice

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Abstract

In discrete choice, a user selects one option from a finite set of available alternatives, a process that is crucial for recommendation systems applications in e-commerce, social media, search engines, etc. A popular way to model discrete choice is through Random Utility Models (RUMs). RUMs assume that users assign values to options and choose the one with the highest value from among the available alternatives. RUMs have become increasingly important in the Web era; they offer an elegant mathematical framework for researchers to model user choices and predict user behavior based on (possibly limited) observations. While RUMs have been extensively studied in behavioral economics and social sciences, many basic algorithmic tasks remain poorly understood. In this talk, we will discuss various algorithmic and learning questions concerning RUMs.

2012 ACM Subject Classification Theory of computation → Design and analysis of algorithms; Mathematics of computing → Discrete mathematics; Mathematics of computing → Probability and statistics; Information systems → Data mining

Keywords and phrases discrete choice theory, random utility models, user behavior

Digital Object Identifier 10.4230/LIPIcs.ISAAC.2024.1

Category Invited Talk