Quantifying predictability of sequential recommendation via logical constraints

En XU, Zhiwen YU, Nuo LI, Helei CUI, Lina YAO, Bin GUO

Problems & Ideas

- Problems of quantifying the predictability of sequential recommendation:

  - The behavior candidates' size N is an essential metric in the predictability calculation.

  - Existing methods have significant bias in calculating N in the sequential recommendation.

- Ideas: A method to qualify N by logical constraints can handle the computation of N in sequential recommendation.
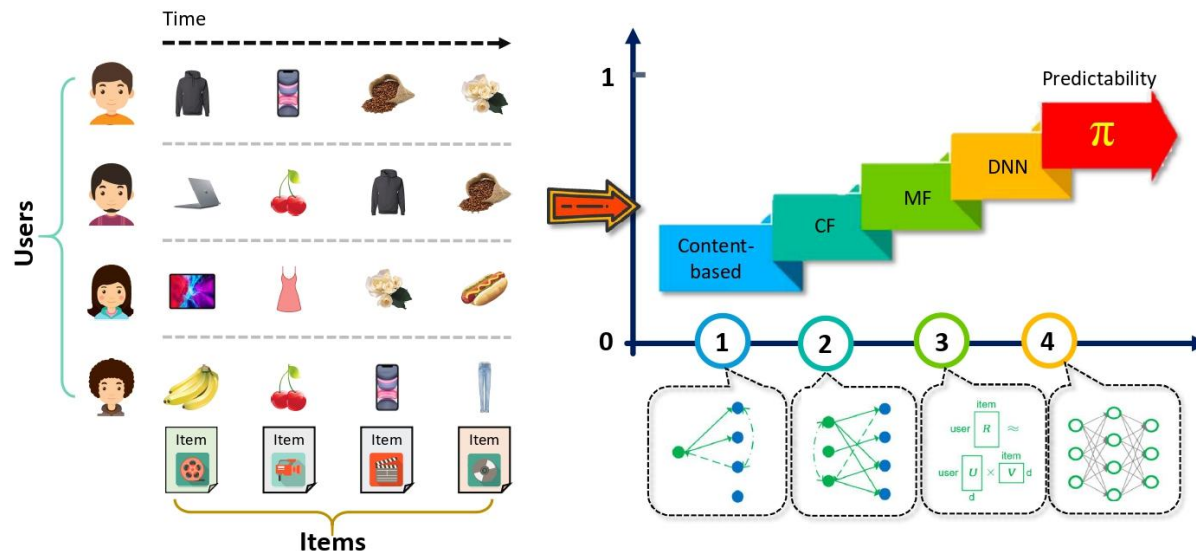
New algorithms are constantly being developed to improve accuracy in sequential recommendation, but what is the highest accuracy, i.e., predictability?

Main Contributions

- Contributions:
  - A method to qualify *N* by logical constraints can handle sequential recommendation in which the set of items is extremely large and new items keep appearing;
  - A method obtains the *N* by correlating the user's next item with the historical items, which is computed quickly;
  - A method obtains the *N* by analyzing how many candidate items *N* can determine the next item, which is computed accurately.
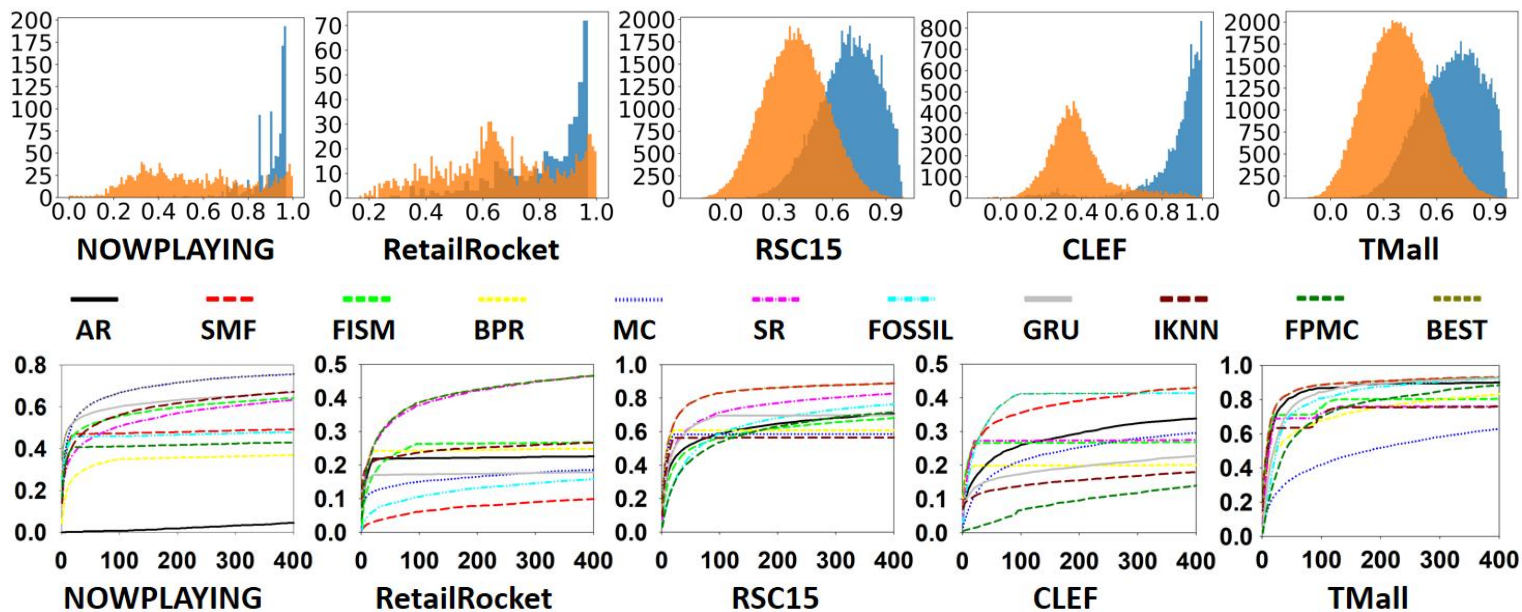
(Top) use the difference in similarity between the historical items and the next item. (Bottom) analyze how large *N* can determine the next item. The two methods focus on speed and accuracy to get *N*, respectively.