Precise Sensitivity Recognizing, Privacy Preserving, Knowledge Graph-based Method for Trajectory Data Publication

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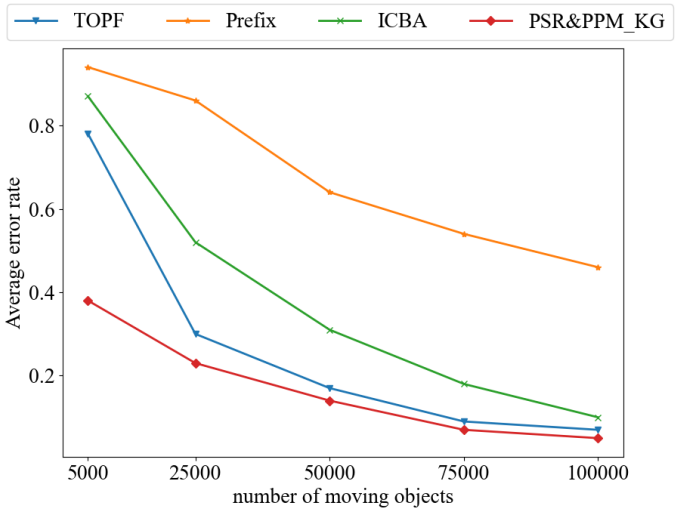
Problems & Ideas

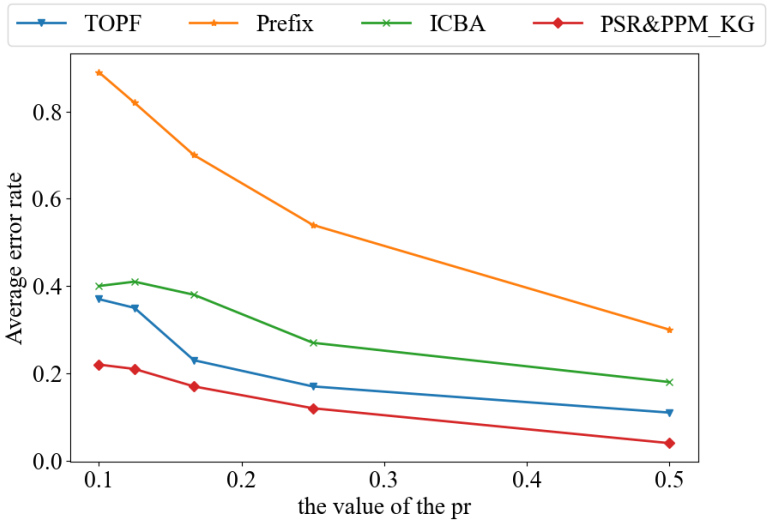
- Problems of existing privacy protection methods for trajectory data publishing
  - Most existing methods of preserving user privacy suffer a serious loss in data usability, resulting in low usability of data.
  - Existing methods ignore the problem of adding unnecessary noise.
- Ideas: Firstly, we precisely recognition the privacy location based on the knowledge graph, and then design the corresponding privacy protection methods.
  - To accurately distinguish sensitive locations of trajectory data，we constructs a trajectory knowledge graph by fusing multiple types of background knowledge (such as user attributes and location tags).
  - We propose an adaptive anonymous method to deal with sensitive locations, which can minimize information loss while providing adequate privacy protection.

Main experimental results

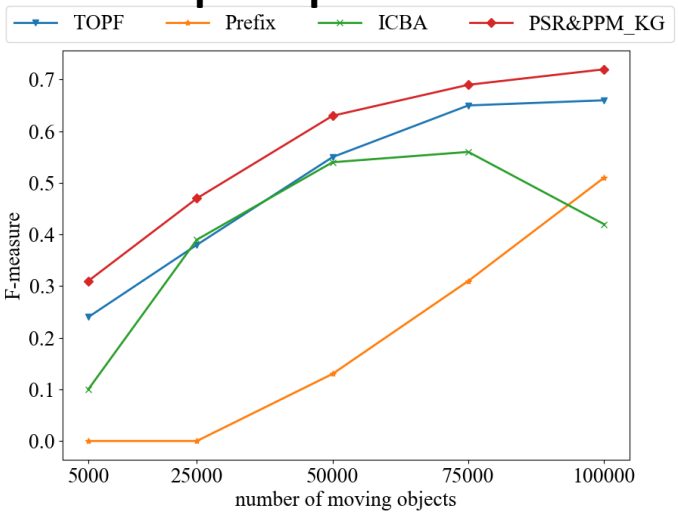
- **The impact of dataset size on data utility**



- **The effect of user privacy tolerance value on data utility**



- **The impact of the size of the dataset on frequent patterns**



- **The effect of the size of the attacker's knowledge on data utility**