Adaptable anonymization techniques for user-customizable privacy

Technology #cu14173

Privacy concerns are a major factor when conducting research on human subjects. In addition, the advent of social media and advances in cellular technology have enabled IT sectors to easily gather large volumes of personal data for business research. Recently, revelations of the breadth of these data collections have led to a greater desire for user anonymity. Most current anonymization software, however, lacks flexibility, preventing users with different security preferences from adjusting their privacy settings. This complexity has made it difficult to gather useful data and discourages users from offering their usage information. This technology provides an alternative technique to anonymity, allowing researchers to collect more useful data while providing users with greater personalized safety and comfort with respect to their Internet identities.

Data anonymization offers both more attractive, customizable settings and better security

Big data gathered from social networking sites and the like often require some anonymization technology for user privacy. However, different individuals have varying levels of comfort towards certain types of data collection. Identifying and adjusting privacy settings to accommodate user needs encourages individual enrollment and data sharing. Unfortunately, despite this demand, most available anonymization techniques lack such adaptability. This technology allows users to configure their anonymity as they desire, making it fully adaptable for each individual. The proposed algorithm provides comfort and safety to the user with additional variables that increase data security while also improving the quality and quantity of data collected. Additionally, this adaptable anonymization allows for enhanced control of knowledge loss, a characteristic typical of data mining approaches.

This algorithm was tested on benchmark and social data sets.

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Applications:

- Can be used for social networking sites such as Facebook, Twitter, and Instagram to improve user privacy settings
- May be used by mobile/cellular network hosting companies (e.g., AT&T, Verizon, T-Mobile, etc.) to anonymize usage, location, and other data used for marketing research purposes
- May be used by companies to mine big data while keeping the data anonymous with respect to its users
- Can be expanded to healthcare software to anonymize patient data for research purposes
- Other companies that store consumer data—including banks and retail companies—can benefit from this technology if planning on storing user information in the long term

Advantages:

- Adaptable anonymization, leading to flexibility and customization
- May increase user enrollment due to increased comfort levels with data collection
- Adaptability may increase data security, making it more difficult for data theft to occur
- Has guaranteed algorithms and theory on the fully adaptive anonymity problem, which no other current methods can guarantee

Patent Information:

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Related Publications:


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