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Method for Verifying Social Media Data Received from Third-Party Providers

Background

The incredible amount of data generated through users of Online Social Networks (OSNs) has given rise to third-party Social Data Providers (SDPs). These entities purchase complete datasets from OSNs in order to sell more tailored data services to end consumers. As this outsourcing model becomes more prevalent in the social media space, the veracity of the resold data has come under scrutiny: Data provided by an SDP can be manipulated, incomplete, or unreliable, often to satisfy the interest of the paying party. Without effective safeguards, downstream business decisions can prove ill-informed for the data consumer.

Invention Description

Researchers at Arizona State University have developed an innovative method for ensuring accuracy and completeness of outsourced social datasets.

Data queries on a given node attribute (such as age, location, and gender) result in a subgraph of the original social network graph. Verification is achieved by checking whether all resulting subgraph edges and nodes match original OSN data after being channeled through the SDP. The core solution proposed requires each involved OSN to generate some cryptographic auxiliary information with its dataset. A verification object constructed by the SDP can then be used by the end consumer to confirm query-result trustworthiness. An enhancement to this method reduces computation, storage, and communication overhead by generating the auxiliary information for grouped nodes of identical attribute values.

Extensive experiments using real Twitter data confirm the high efficacy and efficiency of the invention.

Potential Applications

- Social Data Outsourcing

- Verifiable Analytics

- Online Social Networks

Benefits and Advantages

- Risk-cutting – Verifies social data quality by allowing outsourced information to be audited

- Efficient – Method emphasizes practical integration with low overhead cost

- Accurate – Ensures that outsourced information is accurate and complete

Related Publication

Homepage of Professor Yanchao Zhang