Data Forensics with Analytics
Trust Discovery for Data Quality

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Data Forensics with Analytics, or DAFNA for short, is an ambitious project initiated within the Data Analytics Research Group in Qatar Computing Research Institute. It main goal is to provide effective algorithms and tools for determining the veracity of structured information when they originate from multiple untrustworthy sources. The ability to efficiently estimate the veracity of data, along with the reliability level of the sources in presence, is an ubiquitous problem in many real world use cases, e.g., data fusion or social data analysis, in which human rely on an automated data acquisition and integration process in order to consume high quality information for personal or business purposes. DAFNA's vision is to fill the gap of the lack of a comprehensive framework for information veracity management, with a direct impact on applications related to Qatar. Such a challenge requires to investigate various research topics such as a general purpose truth discovery algorithm and its applicability in practice.

We will present our ongoing study on extensively comparing the state-of-the-art truth discovery algorithms, releasing the first REST API for truth discovery algorithms, and designing an hybrid truth discovery approach using active ensembling. Finally, we will briefly present real applications of truth discovery in Qatar. .

Efficient Truth Discovery   Truth discovery is a hard problem to deal with in practical as often there is no a-priori about the veracity of provided information and the reliably level of the sources. Thereby, the methodology followed by the majority of the existing truth discovery algorithms in order to determine the veracity of information is driven by the application domain and the characteristics of the dataset, e.g. the distribution of conflicts, the similarity of data item values, ect. Therefor, the design of a general purpose (effective) truth discovery approach first requires a thorough understanding of the literature. A new approach should take advantage of the benefits of each existing solution, while being built on realistic assumptions for an easy use in real applications.

The first challenge dealt by the DAFNA project was to provide a comprehensible study of existing truth discovery algorithms.

- Comparative Study of existing truth discovery algorithms

- Ensembling based active learning strategy

- Design and release of a RestFul API for third party applications

Potential Applications in Qatar   Information about Qatar are now available on multiple places. General purposes Web applications