TECHNOLOGY

Conservation Dependencies

OVERVIEW

Many constraints and rules have been used to analyze data quality: functional, inclusion and sequential dependencies, association rules, etc. Additionally, a broad class of tools not covered by existing constraints may be identified, where a "conservation law" exists between related quantities. Conservation laws, however, are obeyed only to varying degrees in practice. While a conservation law serves as a useful abstract ideal against which real data may be measured, short-term deviations naturally occur. For example, the number of inbound packets at an IP router does not necessarily equal the number of outbound packets, and so forth.

Researchers at the University of Maryland have developed a novel method for analyzing data that utilizes conservation dependencies. A conservation dependency, essentially an underlying conservation law coupled with a tableau, can be used to identify for which subsets of data a conservation law holds (or fails). The resulting "hold" or "fail" tableau measures the degree to which values deviate from an exact conservation law for the data in question.

APPLICATIONS

• Credit card and payment monitoring.
• Network monitoring.
• Security devices.
• Transmission control protocol packet traces.
• Computing job logs.

ADVANTAGES

• Improves data analyses based on conservation laws by identifying subsets of data for which the law does or does not hold.

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PATENT STATUS

Issued

LICENSE STATUS

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CATEGORIES

- Information Technology
- Software + Algorithm

EXTERNAL RESOURCES

- US Patent 9,177,343 %

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