Artificial intelligence and database technology work together

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Abstract. AI - database integration is an effective application for many artificial intelligence technologies as well as major technologies for database development, and for the next generation of computing it supports intelligent information systems based on distributed cooperative tasks. The relationship between AI and large data and the potential values of Bayes in AI are described.

1. Introduction
Effective application of artificial intelligence technology and future computer development require integration of artificial intelligence and database technology. This integration will benefit both technologies, which will greatly promote the development of computing. Information systems (ISS) are the largest potential beneficiaries of artificial intelligence technology. For example, what advanced reasoning ability can you add? Can intelligent system interfaces replace unfriendly interfaces? What happens when AI is used to extend database management features? At the same time, artificial intelligence technology greatly benefits from database technology. For example, what happens if an existing knowledge is shared at the same time and an unexpected application (knowledge sharing and reuse) is possible. Can an AI system hold millions of rules and millions of access facts? If new inference techniques can be applied directly to existing knowledge bases (KBS)? If you can increase your knowledge or independently reorganize an existing extension application. Optimize knowledge base and independence of current use (knowledge)! Artificial intelligence system.

Future computing systems require artificial intelligence and database technology to work with other technologies. These systems consist of many heterogeneous distributed agents with different cooperative functions. Everyone has their own knowledge and reasoning scheme, language, and functions. Data, programs, knowledge, and objects of these systems may be shared, incomplete and inconsistent with other agents, but they continue to exist and together, together They form one large one distributed information base. Current trends are connectivity and interoperability. Access systems are through the standard interface -- it evolves into intelligence interoperability. The best way to achieve a given goal. Future computer systems

Artificial intelligence and database technology Many of these challenges. e.g. Manage, structure, search, share and change objects; The inference of tasks and specific domains is displayed in a simpler form in the current AI and DB systems. Extending existing solutions to new environments must
understand both technology, their requirements and their needs and their limitations to depth. With the
difficulty and research of current research and commercialization of artificial intelligence systems,
some of the problems about future systems are lack of such a deep understanding. Ai-db integration is
interested in the beginning of AI and DB fields 30 years ago. Since then, the AI and DBs developed
into general results and general technologies associated with two mature research fields. g. As a result
of DBMS, symbolic programming, KBS shell, and theorem verification, similar results were not
obtained.

Effective ai-db integration requires an AI engineer to have deep understanding and database
personnel requirements for AI systems that database technology can provide. This understanding has
not been realized yet. Unfortunately, there is little effective communication or technology transfer
between AI scientists and practitioners and their database colleagues. A recent true story is a typical
example.

2. The next generation of computing technology
The current prevailing vision of the future of computing is to build networks on heterogeneous
computers and systems to provide access to remote resources such as computer cycles and systems
[Figure 1]. The buzzword interoperability suggests connecting the current "islands of automation."

Figure 1. Networking and Interoperability

The interoperability of computers and systems that enable many networks seems to be published
daily. In fact, there are more stories than progress. Computer industry is slow to connect
heterogeneous computers and systems. Interoperability is prolonged and still has a long way.
Interoperability is only 10% of future vision. It ensures that the system can communicate (e.g.
through messages). This will not guarantee the mutual understanding of the message. Interoperability
is a step towards intelligence. The system communicates through interoperability. Interoperability acts
like an intelligent agent that cooperates to solve critical problems. We need an agent network.
Because each agent has a unique resource, like a human agent. e. Knowledge, data and functional
capabilities.

3. What is AI-DB integral?
The ai-db integration focuses on large-scale or shared information based reasoning. It contains any
combination of artificial intelligence and database technology. Some of these systems are easy to
imagine: Multiuser KBS efficiently access to multiple large shared databases or file systemsA
traditional information system enhanced by the KBS function, such as an airline reservation system
with intelligent route selection that allows passengers' preferences to notify passengers of re
departure based on changes such as flight availability and weather. The potential is much larger than these
simple extrapolations. Interest in ai-db integration has increased in the past 30 years. This trend can be
seen from the number of published ai-db papers (Figure 2).
4. The contribution of AI

Like large data, AI increases the quantity, speed and diversity of data. In large data volumes, the AI allows difficult pattern recognition, learning, and other tasks to be delegated to a computer-based approach. For example, global stock trading is done via more than half AI based systems. In addition, the AI increases the speed of data by facilitating high-speed computer based decisions that lead to other decisions. For example, the speed of transactions can be increased because many stock transactions are made by AI based systems rather than people, and one transaction may lead to another. Finally, the diversity problem cannot be solved by parallelization and dispersion problem. Instead, diversity is alleviated by the use of AI and other analysis methods to capture, configure and understand unstructured data.

AI researchers have long been interested in analyzing unstructured data and building applications that classify or struct data. The resulting information can be used directly to understand the process or to interact with other applications. As an example of Joan Boren and fina Mao, the Dow Jones industrial stock market forecast was improved by considering the overall "sentiment" of the stock market. In another application, companies began investigating the impact of unstructured data problems such as corporate reputation [1]. For example, Scott Spangler and his colleagues discussed how several companies can analyze various types of data, produce structured initiatives, and provide continuous monitoring of activities such as evaluating the reputation of the company and its products. Data flow, such as financial monitoring and auditing, were investigated in other operations. Structured data requires multiple methods [2].

Philip Hayes and Steven Weinstein developed a system to help classify individual news stories for the Reuters news service. The resulting system classifies unstructured news articles into approximately 700 categories and identifies over 17000 company names with 85 percent accuracy. The researchers began generating an unstructured emotion analysis included in a separate approach, blog, twitter message, and other text [3]. The nature of these disagreements can be used to investigate the range of questions. For example, after an advertisement has been executed, there are configured transaction information (e.g., when and where the advertisement is executed). Transaction information can be aligned like previously unstructured data, such as the number of tweets referring to ads and corresponding positive or negative sentiment of those messages. In addition, AI studies often examine structures that other available data can provide. For example, Ethymios koloumpis and his colleagues searched twitter messages and found tag and Emoji. It is useful for identifying emotions. When data is structured, companies want to use data mining to gain insight into this large data. However, there are some limitations that hinder this analysis.
AI is a magical approach behind big data, what is the relationship between these seemingly unrelated fields, such as Bayesian data, artificial intelligence, ocean exploration and rescue, biomedical and email filtering? The answer is to use all the same formulas - Bayesian formula. It is very simple and not important, but it has a deep meaning. It is assumed that there are only two attributes X and y, and the category is represented by CI.

\[
p(c_i|x, y) = \frac{p(x, y|c_i)p(c_i)}{p(x, y)}
\]  

In this way, you can classify the probability of belonging to a category that is based on certain features. Since naive Bayes assumes that its features are independent and equally important, the above expression can be changed.

\[
p(c_i|x, y) = \frac{p(x, y|c_i)p(c_i)}{p(x)p(y)}
\]

5. Emerging Issues

There are many new issues related to artificial intelligence and large data. First, unfortunately, some mechanical learning algorithms, such as repetitive approaches, such as genetic algorithms, make it more difficult to use them in the MapReduce environment [4]. Therefore, researchers like Abhishek Verma and his colleagues are investigating the design, implementation, and use of genetic algorithms and other iterative methods in hadoop [5].

Second, large data can also have a potential error, imperfection or accuracy difference and "dirty data". AI can be used to identify dirty data, clean up or use dirty data as a means of establishing knowledge of data context. For example, "consistent" dirty data may represent a different context than the assumed one (e.g., data in a different language).

Third, since visualization of data is one of the first applications of large data, AI hopes to facilitate other development. One approach could include capturing knowledge based expert visualization designed to facilitate analysis by other users when large data penetrates the enterprise. Another method is to provide an intelligent data visualization application for a particular type of data.

6. Conclusion

Although the recent use of the term "big data" has grown substantially, one day finds that the term is incorrectly describing once viewed as large data associated with the changes in the technology and functionality calculated once. Furthermore, as different approaches or subdomains attract attention, the term may be divided as well as the term AI. Either way, today’s big data is moving from an intuitive decision to a database decision. Finally, companies create value by solving large problems, solving values in a faster or cheaper problem, and understanding their problems better. Thus, the key role of machine learning and artificial intelligence is to help create companies with intelligent analysis of data, and to create values by capturing structured interpretations of various unstructured data that are increasingly available.

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