Big Data Analytics in Intelligent Transportation Systems A Survey

Abstract

- Big data is becoming a research focus in intelligent transportation systems (ITS), which can be seen in many projects around the world.
- Intelligent transportation systems will produce a large amount of data. The produced big data will have profound impacts on the design and application of intelligent transportation systems, which makes ITS safer, more efficient, and profitable. Studying big data analytics in ITS is a flourishing field.
- This paper first reviews the history and characteristics of big data and intelligent transportation systems. The framework of conducting big data analytics in ITS is discussed next, where the data source and collection methods, data analytics methods and platforms, and big data analytics application categories are summarized.

Existing

- Big Data has become a hot topic in both academia and industry.
- It represents large and complex data sets obtained from all kinds of sources.
- Many of the most popular data process techniques contain Big Data techniques, including data mining, machine learning, artificial intelligence, data fusion, social networks and so on.
- Many people use Big Data analytics in various fields, and have achieved great success

Disadvantage

- Big data is becoming a research focus in intelligent transportation systems (ITS), which can be seen in many projects around the world.
- Intelligent transportation systems will produce a large amount of data. The produced big data will have profound impacts on the design and application of intelligent transportation systems, which makes ITS safer, more efficient, and profitable.
- Studying big data analytics in ITS is a flourishing field.

Proposed

- This paper first reviews the history and characteristics of big data and intelligent transportation systems.
- The framework of conducting big data analytics in ITS is discussed next, where the data source and collection methods, data analytics methods and platforms, and big data analytics application categories are summarized.
- Several case studies of big data analytics applications in intelligent transportation systems, including road traffic accidents analysis, road traffic flow prediction, public transportation service plan, personal travel route plan, rail transportation management and control, and assets

HARDWARE REQUIREMENTS

- Processor :Intel Pentium IV 1GHz
- RAM :256MB (Min)
- Hard Drive :5GB free space
- Monitor :1024 * 768, High Color inch
- Mouse :Scroll Mouse(Logitech)
- Keyboard :104 keys

SOFTWARE REQUIREMENTS

- OS : Windows XP/7/8
- Front End : Visual Studio 2010/ netbeans 7.1
- Back End : SQL Server 2005/ heidisql 3.2
- Browser : Any Web Browser

Conclusion

- In this paper, we presented the development of Big Data and the relevant knowledge of ITS.
- The framework of conducting Big Data analytics in ITS was discussed. We summarized the data source and collection methods, data analytics methods and platforms, and Big Data analytics application categories in ITS.
- We presented several applications of Big Data ana-lytics in ITS, including asset maintenance, road traffic flow prediction, road traffic accidents analysis, public transportation service planning, personal travel route planning and rail trans-portation management and control.
- Several open challenges of using Big Data analytics in ITS were discussed in this paper, including data collection, data privacy, data storage, data processing, and data opening.
- Big Data analytics will have profound impacts on the design of intelligent transportation system, and make it safer, more efficient and profitable

Reference

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