

INFORMATION PAGE OF DOCTOR THESIS

Subject:

RESEARCH AND DEVELOP SOME METHODS OF DATA MINING ON STRUCTURED DATA

Specialty: Information System

Code: 09.48.01.04

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THESIS CONTRIBUTIONS

- Find an attribute reduction in polynomial time without using heuristic like other methods to find an attribute reduction.
- Finding an object reduction in polynomial time while preserving the process of finding all attribute reductions.
- Improve decision tree generation method to perform faster than decision tree generation of ID3 algorithm.
- Prove the problem of subgraph isomorphism solved in polynomial time in closed frequent subgraph mining while other algorithms have not solved the problem of subgraph isomorphism in polynomial times.
- Building measurement on lattice concept to apply to multi-label graph classification using Dempster-Shafer theory. While other multi-label classification methods according to Dempster-Shafer theory must build measurements based on vector representations, but graphs cannot be represented in vector form.

APPLICATIONS, POSSIBILITIES OF APPLICATION IN PRACTICE OR THE RESEARCH QUESTIONS TO CONTINUE

- The object reduction algorithm applies to reducing data size while preserving the search for all attribute reduction. The attribute reduction algorithm helps speed up data mining processes on the consistent decision tables.
- Closed frequent subgraph mining is used to help in medical field, such as discovering drug components, or helping to discover transform rules of potentially pathogenic cells such as cancer.
- The multi-label graph classification is applied to biometrics data to classify gene samples that can simultaneously be involved in metabolism or cause many diseases at the same time.

Supervisor

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