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Evolutionary Data Mining in Electronic Business

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Abstract: Data mining is an emerging technology aimed at discovering patterns in the underlying historical data. A new dimension has been added to data mining by extending this technique to the realm of electronic business. The mining of Web site and other transactional data using data mining techniques and tools is an attempt to recognize, anticipate and learn the buying habits and preferences of customers in the new economy. Data mining will be a critical process impacting our client's long-term electronic business success, where failure to quickly react, adapt, and evolve can translate into customer attrition in the click of a mouse.

Fuzzy models are constructs relying heavily on qualitative domain knowledge and diverse optimization techniques. What makes them different from other models is their inherent embedding in the context of nonnumeric set or fuzzy set-oriented information. One can also look at the development of the fuzzy models from the perspective of data mining—a prudent and user-oriented sifting of data, qualitative observations and calibration of common-sense rules

in an attempt to establish meaningful and useful relationships between system's variables.

Evolutionary data mining is an umbrella term for any data mining using evolutionary algorithms. Evolutionary algorithm (EA) is one of generic population-based metaheuristic optimization algorithms and the best one for finding a satisfactory solution in a responsible time for the NP-hard problems. Using EAs in the discovery of high-level prediction rules is that they perform a global search and cope better with attribute interaction than the greedy rule induction algorithms often used in data mining.

In this plenary talk, we will address the application of evolutionary algorithms and fuzzy models to data mining in electronic business. Firstly, we address overview of evolutionary data mining in electronic business; then, we give fuzzy models, data mining, genetic-fuzzy data mining, and evolutionary subspace clustering; finally concludes.

Keywords: Electronic Business, Data Mining, Fuzzy Model, Multi-objective Genetic Algorithm