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A Hybrid Web Recommender System Based on Cellular Learning Automata

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## A Hybrid Web Recommender System Based on Cellular Learning Automata

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With the rapid growth of the World Wide Web (WWW), finding useful information from the Internet has become a critical issue. Web recommender systems help users make decisions in this complex information space where the volume of information available to them is huge. Recently, a number of web page recommender systems have been developed to anticipate the information needs of on-line users and provide them with recommendations to facilitate and personalize their navigation. Recent studies show that a web usage recommender system which focuses solely on access history has some problems because sometimes this information is incomplete or incorrect. One common solution to this problem is to incorporate some semantic knowledge about pages being recommended into system. In this paper we exploit this idea to improve the dynamic web recommender system which primarily devised for web recommendation based on web usage and structure data. We propose a hybrid web page recommender system based on asynchronous cellular learning automata with multiple learning automata in each cell which try to identify user's multiple information needs and then assist them to recommend pages to users. The proposed system use web usage data, content and structure of the web site to learn user information needs and predicting user's future requests. Our experiments show that incorporating conceptual relationship of pages with usage data can significantly enhance the quality of recommendations.

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**Index Terms:**
Asynchronous cellular learning automata, web recommendation, web mining

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