

Web Page Personalization based on Distributed Learning Automata

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Abstract: One of the challenging tasks in improving web personalization algorithms is the simultaneous use of user's log data and underlying site's link information. In this paper an algorithm based on distributed learning automata and PageRank algorithm is proposed. The proposed algorithm take advantage of usage data and link information to recommend pages to users. The proposed algorithm can also be used to modify the links between pages in order to improve the users' navigation. Unlike existing personalization algorithms which only use usage data, the proposed algorithm uses usage data as well as structural data page recommendation. In the proposed algorithm, a learning automaton is assigned to each page. Each learning automaton using usage data try to learn the probability of transition between pages. Using the probability of transition between pages and the importance of each page which is computed using PageRank algorithm the process of web personalization is done. Unlike the existing pageRank algorithms which use structural data for computation of importance of each page, in the proposed algorithm we use both structural data and usage data for computation of page rank . Through detailed experimental evaluation on real usage data, it is shown that the proposed algorithm can achieve 90% recommendation effectiveness while maintaining a low computational overhead.

Keywords: Learning Automata, PageRank Algorithm, Web Usage Mining.

