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MARKOV MODEL BASED ADAPTIVE WEB ADVERTISEMENT SYSTEM BY TRACKING A USER'S TASTE

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Abstract. *On the internet, commercial messages are automatically posted on the monitor of a user. If they match a user's taste, they would be far more effective. The authors have developed a dynamic Web advertisement delivery system. It does not need any prior registration of the user's taste. The system we propose here not only grasps the change of a user's taste in the long term, but also predicts the user's current taste. A Markov model and kMER are used to analyze a user's Web site history. A lot of historical data are necessary to make an accurate Markov model. But here we propose a sophisticated method to estimate the user's accurate Markov model with a small amount of historical data. We have implemented the proposed method in the Web advertisement system, and have confirmed its effectiveness.*
Keywords: Web advertisement, Dynamic delivery, Markov model, Taste prediction

1. **Introduction.** The internet has come into wider use all over the world, and users can easily obtain a lot of information in seconds. On the other hand, it takes a long time to search for the information users want. In order to reduce this time, a number of techniques had been developed [1, 2]. In the Web advertisements, commercial messages are automatically posted in the specified space of each homepage [3, 4, 5]. If a particular commercial message is delivered to a user when the user wants to see it, the advertising effectiveness would increase. But most commercial messages are delivered in a mechanical fashion, as such the user's taste tends to be ignored. There already exists a system that delivers a commercial message according to the user's taste [6], where the user reports his/her taste in advance on a questionnaire. But in this system, a botheration remains that the user has to sign up for his/her individual information, and it is becoming hard to ask the user to sign up for such an individual information. And in suchlike a method of pre-registration, the taste information remains fixed as of entry time. But a user's taste changes continually. The previousy registered taste information does not always coincide with the user's current taste.

The authors have developed a dynamic Web advertisement delivery system. No prior registration of the user's taste is needed. The system we propose not only grasps the change of a user's taste in the long term, but also predicts the user's current taste. This system functions using a Markov model.

2. **Web Advertisement Delivery Method.**