

Evolutionary Rule-Based Recommender System

Behzad Soleimani Neysiani^{1,2}

Nasim Soltani³

Reza Mofidi³

Mohammad H Nadimi-Shahraki⁴

¹Faculty of Engineering, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan, Iran

²Faculty of Electrical & Computer Engineering, University of Kashan, Kashan, Iran

³Faculty of Engineering, Allame Naeini Higher Education Institute, Naein, Iran

⁴Faculty of Computer Engineering, Najafabad branch, Islamic Azad University, Najafabad, Iran

ABSTRACT

Recommender systems are designed to deliver the products to potential customers as well as collaborative filtering is a perfect method for this purpose. This system will generate suggestions by identifying similar users based on the time of arrival and previous transactions. The low accuracy of suggestions due to sparseness is one of the major concerns about collaborative filtering method, to solve this problem, many researchers used the association rules mining methods. Creating fast high quality association rules can lead to higher quality and fast offers. In this regard, this paper proposes a rule-based recommender system using by Genetic algorithm which requires rules with constant vertices and finally produces rules with constant vertices. The experiments performed on the Movie Lensdataset show a higher rate in rule production than related works, and convergence is faster than the particle swarm algorithm while maintaining quality.

Keywords: Recommender System, Collaborative Filtering, Association Rule Mining, Particle Swarm Optimization, Multi-Objective Optimization.