**A Hybrid E-learning Recommendation Approach Based on Learners’ Inﬂuence Propagation**

**Abstract:**

In e-learning recommender systems, interpersonal information between learners is very scarce, which makes it difﬁcult to apply collaborative ﬁltering (CF) techniques. In this study, we propose a hybrid ﬁltering (HF) recommendation approach (SI −IFL) combining learner inﬂuence model (LIM), self-organization based (SOB) recommendation strategy and sequential pattern mining (SPM) together for recommending learning objects (LOs) to learners. The method works as follows: (i), LIM is applied to acquire the interpersonal information by computing the inﬂuence that a learner exerts on others. LIM consists of learner similarity, knowledge credibility, and learner aggregation. LIM is independent of ratings. Furthermore, to address the uncertainty and fuzzy natures of learners, intuitionistic fuzzy logic (IFL) is applied to optimize the LIM. (ii), a SOB recommendation strategy is applied to recommend the optimal learner cliques for active learners by simulating the inﬂuence propagation among learners. Inﬂuence propagation means that a learner can move toward active learners, and such behaviors can stimulate the moving behaviors of his neighbors. This SOB recommendation approach achieves a stable structure based on distributed and bottom-up behaviors of individuals. (iii), SPM is applied to decide the ﬁnal learning objects (LOs) and navigational paths based on the recommended learner cliques. The experimental results demonstrate that SI −IFL can provide personalized and diversiﬁed recommendations, and it shows promising efﬁciency and adaptability in e-learning scenarios.

**SYSTEM REQUIREMENTS:**

**HARDWARE REQUIREMENTS:**

* System : Pentium Dual Core.
* Hard Disk : 120 GB.
* Monitor : 15’’ LED
* Input Devices : Keyboard, Mouse
* Ram : 1 GB

**SOFTWARE REQUIREMENTS:**

* Operating system : Windows XP/UBUNTU.
* Implementation : NS2
* NS2 Version : 2.28
* Front End : OTCL (Object Oriented Tool Command  Language)
* Tool : Cygwin (To simulate in Windows OS)