**A Hybrid Approach to Service Recommendation Based on Network Representation Learning**

**Abstract:**

Network representation learning has attracted much attention as a new learning paradigm to embed network vertices into a low-dimensional vector space, by preserving network information. In this paper, in the light of user co-tag network and social network, we introduced network representation learning techniques into the learning of user preference, to encode user social relations into a continuous vector space. First, we proposed a hybrid network representation learning approach to effectively utilize users' tagging and social relationships, and then we took it for service recommendation. The experimental results show that, compared with four baselines on two public data sets, the improvement ratio over the baselines is up to 50% in terms of Recall@10 and Precision@10 and the improvement is even more than 90% in terms of NDGG@10 and MRR@10.

**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)