

Transfer learning for resolving sparsity problems in recommender system

Abstract:

As we all know, there are many e-commerce websites and applications with the rapid rise in the population. Like Amazon and Flipkart not all applications get many reviews from users. Due to this the machine will find hard to recommend products to new users. Sparsity is major issues faced by several E-commerce websites especially for new users and items because due to lack of sufficient feedback (reviews given by user) data these systems suffer from sparsity problem which leads to decline in their prediction efficiency in return these systems can recommend wrong products for user so to overcome that issue we are using a technique called Transfer Learning it very successful in reducing sparsity problem and increase the efficiency of recommender system algorithms.

Recommender System primarily envisages the level of inclination of a given item by a user, based on their prior interaction with the system or on the basis of the behavior of other users and makes the relevant recommendations. This level of inclination is often expressed in the form of explicit item ratings, their reviews and comments expressed in social media channels like blogs , forums etc. , by their usage pattern of the item and purchase behavior . Various approaches to recommender system make use of user's prior ratings, their demographic profiles, purchase history and their search history etc.

To overcome this problem we will be using Transfer Learning which is a machine learning paradigm that makes use of knowledge learned in one task in a different but related source domain, to solve the task in other target domain. This is particularly useful when there is scarcity of fewer high-quality training data. In order to resolve this sparsity problem in RS, we propose a TL based approach based on Basic Human Values . So the data about the user may also already exist in other domains and we can use that data to give best recommended product .But how to integrate data from other websites? We transfer the data from other source to the target website. For example, if we search for a product in Amazon and return without buying anything you'll see ads of those products in social media platforms like Instagram and Facebook.

But this is place we face real challenge we need to effectively borrow the users' rating data of one website (source domain) to help improve the recommendation performance of another website.

Dataset Identified : Amazon Earphone Reviews

Link to the dataset: <https://www.kaggle.com/shitalkat/amazonearphonesreviews>

GROUP DETAILS

Roll number	Name of the Student	Identified Role
CB.EN.U4CSE19104	Alla Venkata Siddhartha	Project Planner
CB.EN.U4CSE19110	Monish	Strategic Developer
CB.EN.U4CSE19130	Mathan Karthick	Data Analyst
CB.EN.U4CSE19149	Siva Pranesh	Application Designer