**Abstract:**

Proposes a content based recommendation system. Deep learning approach to map users and items to a latent space where the similarity between users and items is maximized. It is extended to apply for multiple domains. The proposed multi-view DNN model can encompass millions of users and billions of item entries.

**Introduction:**

Previously developed models for suggesting relevant content to users is **Collaborative Filtering (CF).** CF uses previous history of interaction of the users in the website.Other one is **Content-based recommendation system (CBRS)**. CBRS matches features of users to the items features to recommend content.

CF needs considerable amount of previous browsing history. This is called user cold start problem. CBRS approach can handle new items well but because there is limited information available about new users, CBRS is less effective and in this user’s features are extracted from user’s online profile.

The proposed recommendation system extracts user’s features from user’s browsing and search histories. The proposed model is deep learning approach extended from the Deep Structured Semantic Models (DSSM). It also extends Single-view DNN which learns from one domain to multi domain which I called multi-view DNN.

One challenge is using deep learning model is the high dimension of the feature space which makes the learning inefficient and may impact generalization ability of the model.

**Related work:**

Collaborative recommendation systems: Nearest neighbor modeling[3], Matrix completion[19], Restricted Boltzmann machine[22], Bayesian matrix factorization[21].

User collaborative filtering[3], Item based collaborative filtering[23], User-item based collaborative filtering-matrix factorization techniques like [19] and [21]. CF faces user cold start problem.