COMPREHENSIVE STUDY OF RECOMMENDER SYSTEM WITH EASE OF LIFE AND FUTURE PREDICTION

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Abstract: - In this world of big data, we have to search favour of data positioning and analysis as a recommender system to create ease of life. Methods of content-based, collaborative filtering, knowledge-based and power of neural networks can bring this desire for smart living into reality. The use of matrix factorization can bring the number of users and ratings of likelihood in the combined calculation to predict recommendations with other methods. Recommendations like movies on Netflix, videos on YouTube, and in general life recommendations of clothes according to outside temperature. The computer language Python can support this prediction. Facebook, Google, and LinkedIn companies have shared their experiences with recommendation systems.

1. INTRODUCTION

Deep learning is the solution for many machine learning problems like computer vision, natural language processing and recommendation engines. Neural network architecture and its components like embedding and fully connected layers, recurrent network cells and transformer blocks are good for recommender systems and also, and we can also discuss Google's Wide and Deep and Facebook's Deep Learning recommender model.

Recommender systems were first applied in e-commerce to solve the information overload problem caused by Web 2.0, and they were quickly expanded to the personalization of e-government, e-business, e-learning, and e-tourism. Nowadays, recommender systems are an indispensable feature of Internet websites such as Amazon.com, YouTube, Netflix, Yahoo, and Facebook. In brief, recommender systems are designed to estimate the utility of an item and predict whether it is worth recommending.

Different techniques to design a recommender system like association rules, content-based, collaborative filtering, matrix factorization and training linear, tree-based models to predict the interaction recommendation as interaction likelihood. The neural network is good for more data and is flexible in its design. We can transfer new enhancements such as optimizers, and new layers to the recommender system. We can process product images with the convolutional neural network. Deep learning is highly optimized to process terabytes to petabytes of data.
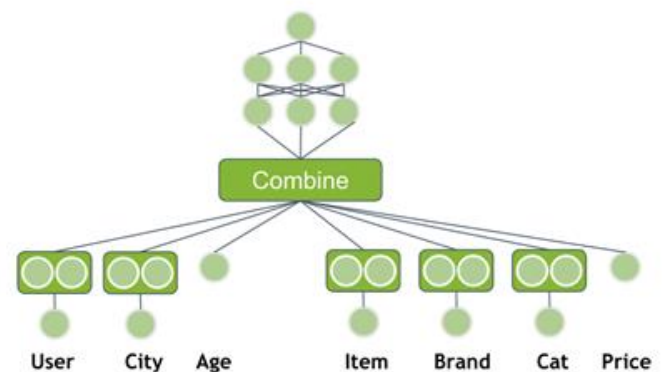

Figure 1: A neural network design for a recommendation system with met knowledge.

2. METHODOLOGY

Data organization for clothing recommendation system as per temperature: In the training of neural network, input data can be shown as a set of Python values, for example, it attaches three kinds of clothes windcheater, jacket, and raincoat. Output is like, in three positions, if the windcheater is chosen according to temperature third position will be 1 and the rest are zero, likewise, the jacket will be put in second position 1 and others are zero in output and in the same way raincoat will put first position as 1 and other are zero as in below python statement:

output data = np. array([[0, 0, 1], [0, 1, 0], [1, 0, 0]])
Each recommendation is based on temperature ranges like 40-20 °F, 60-40 °F and 80-60 °F

Temperature = np. array([[40,20], [60, 40], [80, 60]])
Recommendation system for YouTube:

YouTube has the following features:
1. The scale of data: Large number of users on YouTube.
2. The Freshness: A large number of videos are uploaded on YouTube every second and minute.
3. Noisy implicit feedback

One neural network is responsible for taking in the user's watch history as input and giving a small subset of videos as

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recommendations from YouTube's huge corpus of videos. The candidate generation networks work based on collaborative filtering. The features like watching history and demographics are used to decide the similarities between users. The second neural ranking network accomplishes the choosing of top N items by assigning scores to each video according to the desired objective function using the set of features describing the video and user.

Recommendation System for Wikipedia: Another recommendation system will be built on the idea that books that link to similar Wikipedia pages are similar to one another. We can represent this similarity and hence make recommendations by learning embedding's of books and Wikipedia links using a neural network. The result is an effective recommendation system and a practical application of deep learning.

3. PROPOSED WORK

Recommendation system for best computer language suited for current research, based on many research papers and computer language is used in those research papers, a higher rank for computer language in the neural network means best suited for current research. Data may be generated from 100 or more research papers with computer language used using neural networks. We can train this neural network for other parameters of research also.

4. CONCLUSION

Decision-making is always supported by data and its analysis but if data is in terabytes and petabytes, we have to train, a system for the best-recommended answer and deep learning can provide the solution, neural network is possible by computer languages and training practice is needed for smarter lives.

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