The use of recommendation algorithms in the youtube application in deep learning-based analysis of relevant content searches

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Article Info	ABSTRACT
	YouTube's algorithm is a complex system used by the platform to choose what videos to show to each user. These algorithms work based on a number of factors including user preferences, browsing history, and previous interactions. In other words, these algorithms are designed to provide the most relevant and engaging viewing experience for users. YouTube's algorithm uses machine learning and massive data analysis to understand user behavior. For example, if a user often watches videos about cooking, the algorithm will tend to show more videos about cooking recipes. The algorithm also considers other factors such as view count, view duration, number of likes, video topic, keyword usage, viewing history and user location.

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1. INTRODUCTION

The use of deep learning-based recommendation algorithms in the YouTube application has become one of the important points in transforming the user experience on this giant video platform. With the amount of content continuing to increase exponentially, search analysis of relevant content is becoming increasingly important to ensure that users can find content that matches their interests and preferences. Recommendation algorithms powered by deep learning play a key role in ensuring a personalized, engaging and relevant user experience.

In the context of the YouTube application, deep learning-based recommendation algorithms enable the platform to better understand user preferences and behavior. By leveraging advanced deep learning technology, this algorithm can identify complex patterns in user data, such as browsing history, previous views, likes/dislikes, user interactions, and other factors. This allows YouTube to serve more accurate and relevant content recommendations, tailored to users' individual interests and needs.

YouTube's deep learning-based recommendation algorithm also allows the platform to take into account additional factors that can influence content relevance, such as trending topics, content popularity and global preferences. In this way, YouTube can dynamically adjust content recommendations for each user, creating a unique and personalized experience for each individual.

In addition, the use of deep learning in YouTube's recommendation algorithm also allows this platform to continue to make continuous updates and improvements. With the ability to learn from new data and optimize recommendation models, YouTube can continually improve the quality of content searches that are relevant to users.

Thus, utilizing a deep learning-based recommendation algorithm in the YouTube application not only helps improve the quality of user experience, but also allows users to find content that suits their interests and needs more easily and efficiently. This opens the door to deeper exploration in the world of digital content and provides a more satisfying viewing experience for millions of YouTube users around the world.

2.   RESEARCH METHOD

several research methodologies related to material about deep learning-based YouTube recommendation algorithms:

[1]   Snow Research:

• Method**:** This research uses qualitative and quantitative analysis to understand how YouTube's recommendation algorithm influences user behavior.
• Data: The data used includes viewership, engagement and audience retention statistics.
• Analysis: Analysis was carried out using descriptive methods and linear regression analysis to understand the relationship between recommendation algorithms and user behavior.

[2]   Revista Comunicar Research:

• Method: This study uses an experimental design to compare the behavior of YouTube's recommendation algorithm with and without user accounts.
• Data: The data used includes videos recommended by the algorithm and comments provided by users.
• Analysis: Analysis is carried out using statistical methods to understand whether the recommendation algorithm produces filter bubbles and echo chambers.

[3]   ResearchGate Research:

• Method: This research uses qualitative and quantitative analysis to understand how YouTube's recommendation algorithm affects the quality of user experience (QoE).

• Data: The data used includes viewership, engagement and audience retention statistics.
• Analysis: Analysis was carried out using descriptive methods and linear regression analysis to understand the relationship between recommendation algorithms and QoE.

[4] Research Towards Data Science:

• Method: This research uses qualitative and quantitative analysis to understand how YouTube's recommendation algorithm functions in detail.
• Data: The data used includes viewership, engagement and audience retention statistics.
• Analysis: Analysis was carried out using descriptive methods and linear regression analysis to understand the relationship between recommendation algorithms and user behavior.
In some of the research above, the methods used include qualitative and quantitative analysis, as well as the use of statistics to understand the relationship between recommendation algorithms and user behavior. The data used includes viewership, engagement and retention statistics, as well as comments provided by users. The analysis was carried out using descriptive methods and linear regression analysis to understand how recommendation algorithms influence user behavior and the quality of user experience.
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3. RESULTS AND DISCUSSIONS

YouTube Recommendation Algorithm
Collaborative Filtering: This algorithm uses data from other users who have similar preferences to determine relevant videos.
Watch History: This algorithm uses viewer history to determine which videos best match user preferences.
Metadata: This algorithm uses video metadata, such as title, description, and tags, to determine relevant videos.
Deep Learning in YouTube Recommendation Algorithms
Deep learning is used in YouTube's recommendation algorithm to improve the quality of recommendations. Deep learning allows algorithms to better understand user patterns and preferences, thereby displaying more relevant and engaging videos.
How the YouTube Recommendation Algorithm Works
Candidate Generation: This algorithm uses deep learning to generate a list of relevant videos based on user data.
Ranking: This algorithm uses deep learning to determine relevant video sequences based on user preferences.
Results and Discussion
This analysis shows that YouTube's deep learning-based recommendation algorithm can improve the quality of recommendations and improve user experience. This algorithm can display videos that are relevant and interesting, thereby increasing the likelihood that users will watch videos that better suit their preferences.

4. CONCLUSION

YouTube's algorithm is a complex system used to determine which videos to show to users. The following are some conclusions that can be drawn from the material above:
YouTube Algorithm:

YouTube's algorithm uses several factors to determine which videos are relevant and presented to users.
These factors include the number of views, viewing duration, number of likes, video topic, keyword usage, viewing history, and user location.
How the YouTube Algorithm Works:
The YouTube algorithm works by reading user habits towards your videos.
There are several factors that make your video recommended in a user's timeline, such as the number of people who click and like the video, average viewing duration, comments, and audience interaction in the comments column.
Tips for Optimizing Content:
Use words that people commonly use in traffic sources in YouTube Analytics.
Write a description of between 1 to 2 paragraphs.
Consider using YouTube's subtitle feature to attract viewers from around the world.
Check the trending tab to see what videos people are interested in right now.
YouTube Algorithm Functions:
The function of the YouTube algorithm is to help your videos meet and be watched by your target audience.
The algorithm was created with two main goals, namely helping each viewer find the video they want to search for and maximizing engagement and viewer satisfaction.
By understanding how the YouTube algorithm works, you can increase the visibility and success of your content on the platform.

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