

UDC 004

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ANALYZING THE IMPACT OF NEW YOUTUBE ALGORITHMS ON VIDEO RANKING

Summary. *YouTube's algorithms are a key factor in determining the visibility of video content on the platform. They are constantly evolving, using machine learning and deep neural networks (DNN) to personalize results and recommendations. This article examines modern ranking algorithms, the impact of content quality metrics, and predicting user satisfaction. Particular attention is paid to trend analysis, the role of watch time, audience engagement, and changing approaches to SEO. Statistics and predictions about the future of YouTube's algorithms are also presented.*

Key words: *YouTube algorithms, Video ranking, YouTube recommendations, Impact of YouTube algorithms, Deep Neural Networks (DNN), Content quality on YouTube, User engagement, User satisfaction, Analysis of YouTube algorithms, YouTube statistics.*

Introduction. YouTube is the largest video platform in the world, and its algorithms are constantly changing and improving, significantly affecting content ranking, the appearance of videos in recommendations, and the organic growth of new channels. In this article, we will analyze in detail the key YouTube algorithms, their impact on various aspects of the platform, including the emergence of new trends, the specifics of promoting new accounts, and the mechanism for ranking

video content in general. We will consider which metrics have the greatest impact on video visibility, how the algorithms have changed in recent years, and what strategies can help authors increase their reach.

1. YouTube's Core Algorithms and Their Updates

YouTube uses sophisticated machine learning algorithms that analyze vast amounts of data to determine which videos should be shown to users in search, recommendations, and on the homepage. These algorithms are constantly evolving, adapting to user behavior and changing video ranking strategies.

Recommendation Algorithm

The recommendation algorithm is one of YouTube's most powerful tools. It analyzes each user's preferences based on their viewing history, likes, comments, watch time, subscriptions, and other actions. The main task of this algorithm is to select content that is most likely to interest the viewer and hold their attention.

YouTube uses deep neural networks to predict user interaction with videos. The algorithm analyzes dozens of parameters, such as content type, video length, speed of pressing the play button, and even pauses during viewing. The main focus is on engagement - the more time a user spends on the platform, the higher the likelihood that their preferences will be taken into account when forming recommendations. This makes the algorithm dynamic and unique for each viewer.

Search Algorithm

YouTube's search algorithm plays a key role in organic video promotion. Unlike the recommendation algorithm, which focuses on a personalized experience, the search algorithm evaluates the relevance of videos based on user queries.

YouTube previously actively used an SEO approach based on keywords, tags, and descriptions, but in recent years, the platform has prioritized behavioral factors. Videos with high watch time, high audience retention, and active user interaction (likes, comments, reposts) receive an advantage in search results.

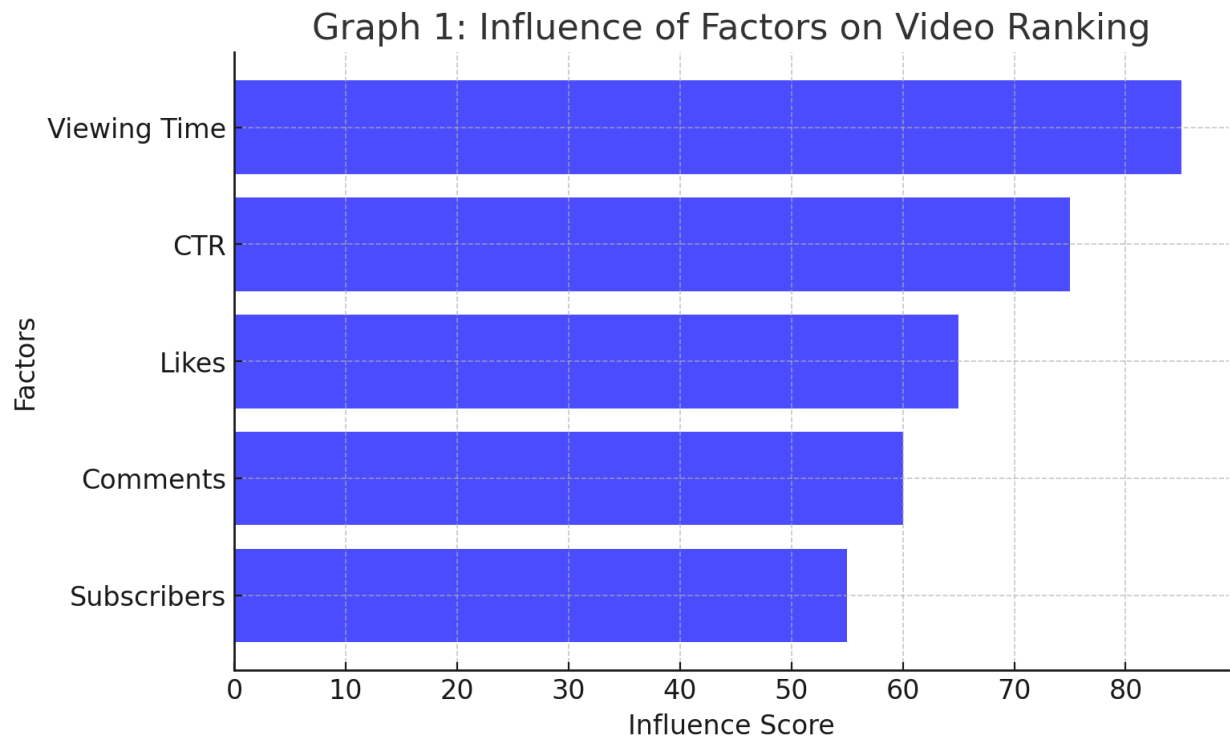
The adaptability of titles and metadata also plays an important role. The algorithm analyzes how well the video matches the entered query, but also checks how users react to this content. If a video is closed quickly, this reduces its ranking in search. Therefore, YouTube recommends that creators make titles and descriptions more accurate and reflect the essence of the content.

Shorts Algorithm

The YouTube Shorts format has seen significant development in recent years. The platform has implemented a separate algorithm that works on the principle of quickly analyzing viewer engagement. Unlike traditional videos, which take into account views and audience retention, the Shorts algorithm focuses on the speed of engagement.

- Key factors influencing Shorts promotion:
- Number of views in a short period of time.
- View percentage (how many users watch the video to the end).
- Number of likes, comments, and subscriptions after watching the video.
- Number of repeated views of the same video.

Shorts actively compete with TikTok, so YouTube strives to ensure high content rotation. A video that quickly gains popularity immediately gets into recommendations, but can also quickly lose positions if interest in it decreases.



Graph 1. Influence of factors on video ranking

(Graph: viewing time, CTR, likes, comments, number of subscribers)

2. Deep Neural Networks (DNN)

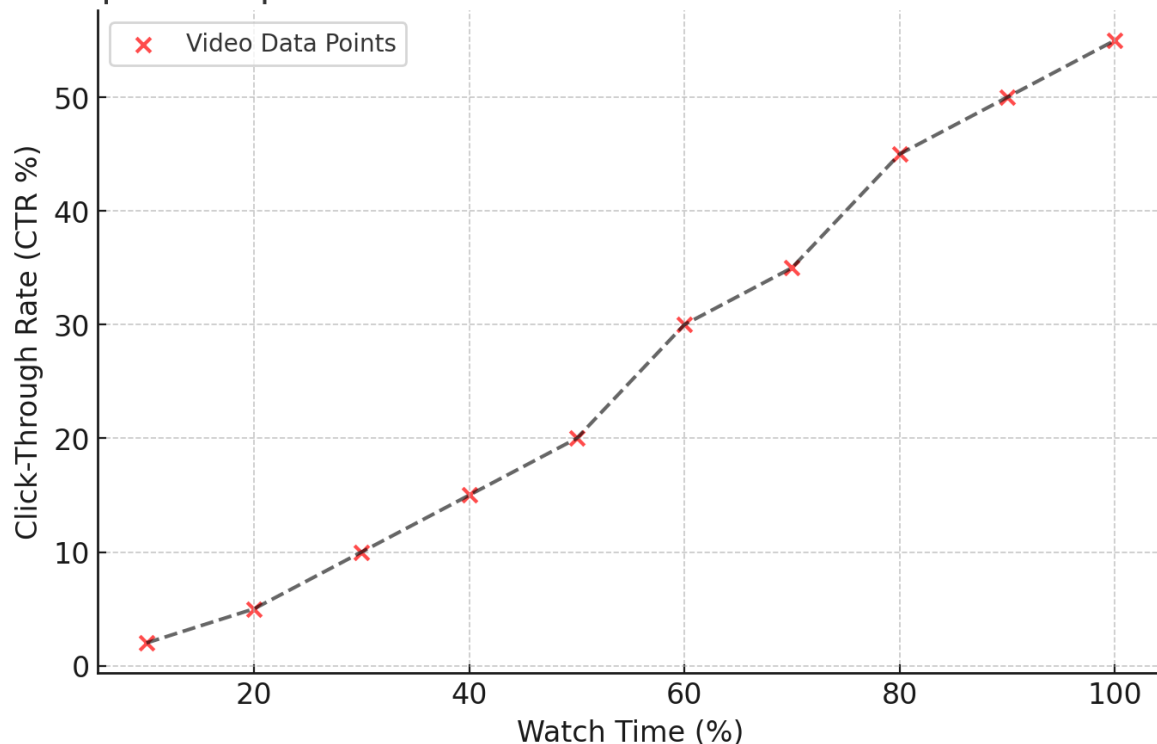
YouTube's modern algorithms make extensive use of deep neural networks (DNN) to analyze and process video content. These networks consist of multiple layers of artificial neurons that can analyze data at different levels, from basic features such as text metadata to complex user behavior patterns. DNNs allow YouTube to predict which videos will be most interesting to users based on huge amounts of data.

One of the key applications of DNNs in YouTube's algorithms is the processing of visual and audio content. The network analyzes thumbnail images, recognizes faces, objects, text on the screen, and even the tone of voice in videos. This data is then used to generate recommendations and assess the quality of the content. For example, if a video often features scenes with famous bloggers or

popular topics, the algorithms can automatically increase the likelihood of such content being included in recommendations.

In addition, DNNs are used to predict the likelihood of a viewer interacting with a video. The algorithm evaluates the likelihood that a user will like, comment, or watch the video to the end. These factors are critical for promotion, as YouTube strives to promote content that can hold users' attention and generate maximum engagement.

Graph 2: Impact of CTR and Watch Time on Recommendations



Graph 2. Impact of CTR and watch time on recommendations

(Graph: Relationship between impressions and audience retention)

3. Content Quality Metrics

YouTube actively uses various content quality metrics to determine which videos should be promoted in recommendations and which should be demoted in search results. These metrics include both quantitative and qualitative indicators.

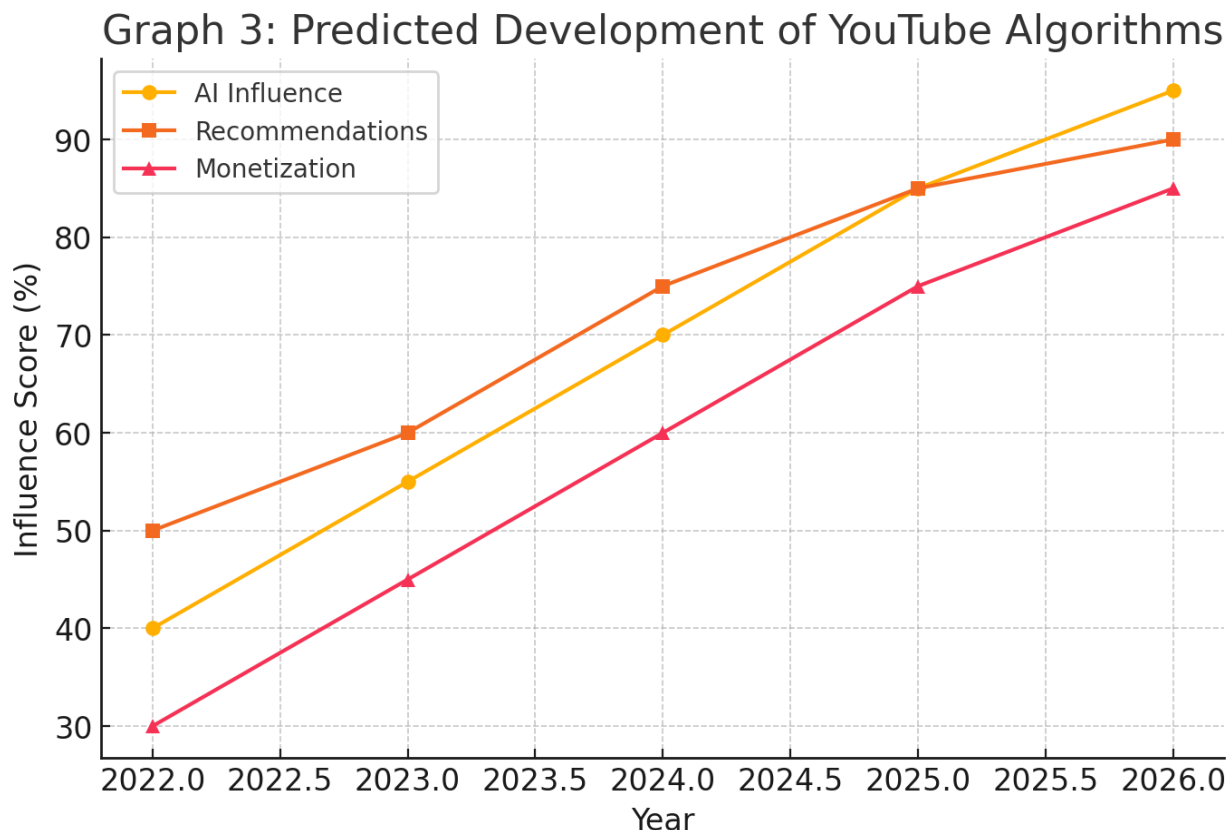
One of the key factors is Watch Time - the more time users spend watching a particular video, the higher its chances of being promoted. It is important to note that not only the absolute watch time matters, but also the audience retention rate. Videos that viewers watch to the end receive a higher priority in recommendations, since the algorithms consider them more valuable.

Another important factor is the Engagement Rate. This includes likes, comments, reposts, and subscriptions received after watching the video. A high level of interaction indicates that the content is interesting and encourages users to actively participate.

YouTube also analyzes User Feedback. This is data obtained through the "Don't recommend" and "I'm not interested" buttons. If a certain type of content gets a lot of negative feedback, the algorithm can reduce its visibility.

4. User Satisfaction Prediction

YouTube uses sophisticated algorithms to predict user satisfaction to determine how well content meets their expectations. One of the key tools for this is the Retention Prediction Model. It analyzes how long users watch videos, how quickly they switch to other videos, and what actions they take after watching.



Graph 3. Predicted Development of YouTube Algorithms

(Graph: Increased Influence of AI, Recommendations, Monetization)

Conclusion. The evolution of YouTube algorithms has a significant impact on video ranking and content promotion strategy. The use of deep neural networks, content quality analysis and user satisfaction prediction allows the platform to select relevant videos for viewers as accurately as possible. It is important to understand that algorithms continue to change, which requires authors to be flexible and ready to adapt to new conditions. Authors striving for success must consider not only the technical aspects of SEO, but also the emotional component of the content. The more the viewer is engaged in the video, the higher their chance of getting into the recommendations. In the future, we expect even greater personalization of recommendations due to artificial intelligence and stricter content moderation. That

is why metrics analysis, high-quality work with the audience and adaptation to changes will become key factors for successful promotion on the platform.

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