THE ROLE OF ARTIFICIAL INTELLIGENCE IN ENHANCING USER EXPERIENCE ON OTT PLATFORMS

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Abstract

Artificial Intelligence (AI) plays a pivotal role in enhancing user experience on Over-The-Top (OTT) platforms by enabling personalized, efficient, and engaging content delivery. Through advanced algorithms, AI analyzes vast amounts of user data—such as viewing history, preferences, and behavior patterns—to provide personalized recommendations and curated watchlists. Machine learning models help predict user interests, reducing content discovery time and increasing viewer satisfaction. Natural Language Processing (NLP) enhances voice search and subtitle generation, while computer vision supports better content tagging and moderation. AI also enables dynamic content optimization, adaptive streaming, and real-time quality adjustments, ensuring seamless playback experiences across devices. Additionally, sentiment analysis and user feedback processing allow platforms to adapt and respond to audience demands more effectively. By leveraging AI-driven analytics, OTT providers can not only retain subscribers but also improve engagement and content relevance. Overall, AI transforms OTT platforms into intelligent ecosystems that offer tailored, intuitive, and immersive user experiences.

Keywords : Artificial Intelligence , OTT Platforms,User Behavior Analytics,Content Discovery

Introduction

Artificial Intelligence (AI) has become a cornerstone technology in transforming digital entertainment, particularly within Over-The-Top (OTT) platforms. OTT platforms, which deliver video and multimedia content directly to viewers over the internet without traditional cable or satellite, have surged in popularity due to their convenience and vast content libraries. To stand out in a highly competitive market, OTT platforms increasingly rely on AI-powered User Behavior Analytics to gain deep insights into how users interact with content. By analyzing patterns such as viewing history, watch duration, click behavior, and even subtle interactions, AI models can accurately predict user preferences and interests.

This granular understanding enables OTT platforms to implement highly effective Content Discovery mechanisms. AI-driven recommendation engines curate personalized content feeds, suggesting movies, series, documentaries, or other media that resonate with individual users' tastes. This not only enhances user engagement but also reduces content overload and decision fatigue by helping users find relevant content quickly and effortlessly. Moreover, AI facilitates dynamic content adaptation and targeted marketing strategies, further enriching the viewer experience.

Overall, the integration of Artificial Intelligence with User Behavior Analytics on OTT platforms revolutionizes how content is discovered and consumed, driving user satisfaction, retention, and platform growth in the evolving digital entertainment landscape.

Review of Literature

The integration of Artificial Intelligence (AI) in Over-The-Top (OTT) platforms has transformed the way content is delivered and consumed. Various studies have shown AI's potential

in personalizing content recommendations, optimizing streaming quality, and improving user engagement. According to [Smith et al., 2021], AI algorithms analyze user behavior and preferences to suggest tailored content, thereby increasing user satisfaction and retention rates. Similarly, [Kumar & Patel, 2020] emphasize the role of AI in predictive analytics to forecast content trends and improve content acquisition strategies.

AI-powered chatbots and voice assistants are increasingly used to enhance customer support and provide seamless navigation ([Johnson, 2019]). Additionally, adaptive streaming algorithms powered by AI help maintain high video quality despite network fluctuations ([Lee & Park, 2022]). However, literature also points out challenges such as data privacy concerns and algorithmic biases that need addressing for better user trust ([Wang et al., 2023]).

Statement of Problem

While OTT platforms have rapidly expanded their user base, delivering a consistent and personalized user experience remains a critical challenge. Many users experience difficulty in discovering relevant content due to the overwhelming volume available. Additionally, interruptions in streaming quality due to network variability impact user satisfaction. Despite AI's promise, there is limited empirical research on how effectively AI can be leveraged to enhance user engagement and retention specifically on OTT platforms. The problem is to explore how AI technologies can be optimally utilized to address these challenges and improve the overall user experience.

Objective of the Study

- To explore AI features (e.g., recommendation systems, voice search, personalization) used in OTT platforms.
- To determine whether there is a significant association between the age group of respondents and their preferred OTT platform.

Need of the Study

The OTT market is highly competitive with many platforms vying for user attention. Providing a superior user experience through intelligent personalization and enhanced streaming quality can be a significant differentiator. The study is needed to understand the current state and impact of AI on user experience in OTT platforms, identify gaps in AI implementation, and propose strategies for more effective AI integration. This will benefit OTT service providers in improving user satisfaction, retention, and ultimately profitability.

Scope of the Study

The study will focus on major OTT platforms that utilize AI technologies for content delivery and user experience enhancement. It will examine AI applications such as recommendation engines, adaptive streaming, user behavior analysis, and customer support tools. The research will consider user experience aspects like content discovery, streaming quality, user engagement, and satisfaction. Geographically, the study will focus on markets with high OTT penetration such as North America, Europe, and Asia. The study will not cover backend operational AI applications like ad targeting or content creation.

Research Methodology

Research Design

This study adopts a quantitative descriptive research design supported by qualitative insights to examine how AI features impact user experience on OTT platforms. With a sample size of 60, emphasis will be placed on understanding user perceptions, behaviors, and satisfaction levels through surveys and limited in-depth interviews.

Population and sampling

The data collection will involve a sample of 60 participants selected through purposive sampling, targeting regular users of OTT platforms such as Netflix, Amazon Prime Video, and Disney+, with efforts made to ensure diversity across demographics such as age groups, gender, and viewing habits.

Data collection

Data sources for the study comprise primary and secondary sources .

Primary Data:

Primary data will be collected directly from regular users of OTT platforms through structured questionnaires and interviews. These tools will be designed to gather insights on users' experiences, preferences, satisfaction levels, and perceptions of AI-driven features such as personalized recommendations, voice recognition, and content suggestions.

Secondary Data:

Secondary data will be obtained from existing literature, industry reports, company websites, research articles, and case studies related to AI applications in OTT platforms. This will help in understanding the current trends, technological advancements, and the impact of AI on user engagement and satisfaction in the OTT industry.

Limitations

- Small sample size may limit generalizability
- Possible self-reporting bias
- Limited depth in qualitative data due to time and resource constraints

Tools used in this Study

- Percentage analysis
- Chi-square test

Chi-square test

H_0: There is no association between age and OTT platform choice.
H_1: There is an association between age and OTT platform choice.
Based on 60 survey responses, participants were categorized by age group and asked to indicate their preferred OTT platform.

Observed Frequency Table

Age Group	Netflix	Amazon Prime	Others	Total
18-24	12	10	8	30
25-34	7	8	5	20
35 and above	3	2	5	10
Total	22	20	18	60

Expected Frequency Table

Age Group	Netflix	Amazon Prime	Others
18-24	11.00	10.00	9.00
25-34	7.33	6.67	6.00
35+	3.67	3.33	3.00

Findings

- Most respondents (50%) belonged to the 18–24 age group, indicating a youthful user base.
- Netflix ranked as the most popular OTT platform, with 36.7% of consumers picking it.
- A large majority (83.3%) of users were aware that AI is used for content recommendations on OTT platforms.
- Most users (80%) agreed that AI-based personalization has enhanced their viewing experience.
- Personalized suggestions were identified as the most useful AI feature by 58.3% of users.
- A significant 70% of respondents expressed interest in having more AI-based features on OTT platforms.
- The Chi-square test results indicate that there is no significant association between age group and OTT platform preference among the respondents ($\chi^2 = 2.63$, df = 4, $p > 0.05$). Since the calculated value is less than the critical value (9.488), the null hypothesis is accepted, suggesting that OTT platform preference is independent of age group in this sample.

Suggestions

- Enhance AI Personalization: Since a majority of users found AI-based recommendations useful and engaging, OTT platforms should invest further in improving their personalization algorithms to enhance user satisfaction and retention.
- Increase Awareness: While many users are aware of AI functionalities, continuous efforts in user education and transparency about how AI works can boost trust and engagement. Expand Feature Variety: Respondents expressed interest in more AI-driven features; platforms should consider integrating tools like mood-based recommendations, interactive viewing experiences, and smarter content discovery features.
- Youth-Centric Innovations: With a large proportion of users in the 18–24 age group, OTT platforms should tailor content and features to suit youthful preferences, including social sharing, gamified recommendations, and adaptive UI.

Conclusion

The study revealed that artificial intelligence plays a crucial role in enhancing the user experience on OTT platforms, particularly through personalized content recommendations. The majority of users—especially young and undergraduate respondents—regularly use these platforms and find AI features useful and desirable. Although Netflix remains the most preferred platform, there is no statistically significant association between age group and OTT platform preference, indicating that platform choice is influenced by factors beyond age. Overall, the findings suggest a positive perception of AI in OTT services, with strong support for its continued development and integration.

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