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AI-driven personalization in web content delivery: A comparative study of user engagement in the USA and the UK

Enoch Oluwademilade Sodiya ^{1,*}, Olukunle Oladipupo Amoo ², Uchenna Joseph Umoga ³ and Akoh Atadoga ⁴

¹ *Independent Researcher, UK*

² *Department of Cybersecurity, University of Nebraska, Omaha, USA.*

³ *Independent Researcher, Seattle, Washington, USA.*

⁴ *Independent Researcher, San Francisco, USA.*

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Abstract

In the ever-evolving landscape of digital experiences, AI-driven personalization has emerged as a pivotal force shaping how users interact with web content. This study conducts a comparative analysis of AI-driven personalization strategies in web content delivery, focusing on user engagement in the United States (USA) and the United Kingdom (UK). The research delves into the nuanced ways in which AI algorithms tailor web content to individual user preferences, examining the impact on user engagement metrics such as time spent on site, click-through rates, and conversion rates. Through a meticulous examination of AI-driven personalization practices employed by web platforms in both regions, this study seeks to identify common trends, regional differentiators, and their implications on user engagement. Key factors considered include the ethical dimensions of personalization, the adaptability of AI algorithms to diverse user behaviors, and the fine balance between customization and privacy concerns. The findings aim to contribute valuable insights to the fields of AI-driven web content delivery, user experience design, and the global discourse on the intersection of technology, personalization, and user engagement.

Keywords: AI-Driven; Web; Content Delivery; USA; UK

1. Introduction

In the dynamic realm of digital experiences, the fusion of Artificial Intelligence (AI) and web content delivery has given rise to a new era of personalized interactions (Bag et al., 2022, Wang, 2021). As users navigate the vast landscape of online content, AI-driven personalization emerges as a guiding force, tailoring digital experiences to individual preferences with unparalleled precision. This study embarks on a comprehensive exploration, delving into the intricate tapestry of AI-driven personalization in web content delivery, with a specific focus on user engagement. Our lens zooms in on the comparative landscape of the United States (USA) and the United Kingdom (UK), unraveling the nuances that define user experiences on both sides of the Atlantic.

The proliferation of digital content has transformed the internet into an expansive marketplace of ideas, products, and information (Labrecque et al., 2013, Jackson, and Ahuja, 2016). Amidst this abundance, the challenge lies in curating experiences that resonate with individual users, capturing their attention, and fostering meaningful engagement. AI-driven personalization emerges as a strategic response to this challenge, leveraging advanced algorithms to decipher user behaviors, preferences, and trends.

* Corresponding author: Enoch Oluwademilade Sodiya

The USA and the UK, two stalwarts in the digital landscape, provide an intriguing backdrop for our study. Both regions boast sophisticated technological ecosystems and diverse user demographics, making them ideal subjects for a comparative analysis (Van Zanten et al., 2016, Gliozzo, Pettorelli, and Haklay, 2016, Ilieva, and McPhearson, 2018). By scrutinizing the AI-driven personalization strategies employed in web content delivery, we aim to uncover shared trends, regional differentiators, and the resultant impact on user engagement metrics.

As personalization becomes more sophisticated, ethical implications come to the forefront. Striking a balance between customization and user privacy is a pivotal aspect of our exploration. AI algorithms must navigate the diverse landscape of user behaviors (Cain and Pino, 2023, Borges et al., 2023). Understanding how these algorithms adapt to individual preferences and behavioral patterns forms a core aspect of our investigation. The crux of our study lies in assessing the impact of AI-driven personalization on user engagement. Metrics such as time spent on site, click-through rates, and conversion rates provide tangible insights into the effectiveness of personalization strategies.

This study aspires to contribute nuanced insights to the evolving discourse on AI-driven personalization, user engagement, and the intersection of technology and individual experiences. By unraveling the intricacies of personalization strategies in the USA and the UK, we aim to provide actionable knowledge for designers, businesses, and stakeholders navigating the dynamic landscape of digital content delivery. As we embark on this journey through the world of AI-driven personalization, the chapters that follow promise a comprehensive understanding of how technology, tailored experiences, and user engagement converge in the ever-evolving digital tapestry.

2. The Unveiling of AI-Driven Personalization in Web Content Delivery

In the vast expanse of the digital universe, where content is king, user engagement is the coveted jewel (O'Brien, and Cairns, 2016, Lalmas, O'Brien, and Yom-Tov, 2022). In the quest to captivate audiences, a technological powerhouse has emerged to redefine the landscape – AI-driven personalization. This blog explores the intricacies and transformative impact of AI-driven personalization in web content delivery, shedding light on how it's reshaping the online experience.

As we navigate the digital landscape, from e-commerce platforms to news websites, the content we encounter is increasingly tailored to our individual preferences (Kiu, and Lee, 2017, Rahman, and Tomar, 2021, Juneja, and Mitra, 2021). This orchestration is made possible by Artificial Intelligence, which acts as the conductor, interpreting user behavior, predicting preferences, and dynamically shaping content delivery (Ma and Sun, 2020, Gao et al., 2023).

Traditionally, websites offered a one-size-fits-all approach, presenting the same content to every visitor (Rula et al., 2014, Malik, and Fyfe, 2012, Uddin et al., 2022). AI-driven personalization flips this paradigm, introducing an era where each user is greeted with a unique digital journey (Grivokostopoulou, Perikos, and Hatzilygeroudis, 2014, Maduka et al., 2023). From product recommendations to content suggestions, personalization adapts to individual tastes, creating an experience that feels bespoke (Mobasher, Cooley, and Srivastava, 2000, Davies et al., 2020, De, and Radha Krishna, 2002).

At the heart of AI-driven personalization are sophisticated algorithms that analyze user data, including browsing history, interactions, and preferences. These algorithms leverage machine learning to continuously refine their understanding, adapting to evolving user behaviors and preferences over time.

Personalized product recommendations based on past purchases and browsing history. Dynamic pricing strategies tailored to individual user behaviors and market trends. Customized content feeds on streaming services based on viewing history and preferences. AI-driven recommendations for articles, videos, or music, creating a personalized content ecosystem. Dynamic website interfaces that adjust layout, colors, and navigation based on user preferences. Customized dashboards or homepages that prioritize content categories of interest.

As AI delves deeper into personalization, ethical considerations become paramount. Striking the delicate balance between customization and user privacy is essential. Transparency in data usage and the implementation of stringent privacy measures are crucial elements in this evolving landscape.

The effectiveness of AI-driven personalization is measured through key metrics such as Time Spent on Site, Click-Through Rates, Conversion Rates. Personalized content tends to keep users engaged for longer durations. Tailored recommendations often result in higher click-through rates. From completing a purchase to subscribing, personalized experiences contribute to higher conversion rates.

As technology continues to advance, the future of AI-driven personalization holds exciting possibilities. Anticipate further refinement of algorithms, increased personalization in emerging fields like augmented reality, and a more seamless integration of AI into the fabric of our digital lives (Zimmermann et al., 2023, Olowonubi et al., 2022, Cao et al., 2023).

In the symphony of web content delivery, AI-driven personalization stands as a virtuoso, creating harmonies of tailored experiences for every user (Rane, Choudhary, and Rane, 2023, Ikechukwu et al., 2019). As we traverse this landscape, the journey promises not just personalized content but a deeper understanding of our preferences and a more meaningful digital engagement. In this personalized odyssey, AI is not just a tool but a maestro orchestrating a digital experience that resonates uniquely with each user (Rahman et al., 2023, Ahuja et al., 2023).

2.1. The Evolution of Personalization in Web Content Delivery

In the bustling realm of the internet, where every click leads to a trove of information, the evolution of web content delivery has witnessed a remarkable transformation. At the heart of this evolution is the dynamic force of personalization – a journey that has seen web content evolve from a one-size-fits-all approach to a bespoke experience tailored to individual preferences. This paper explores the fascinating evolution of personalization in web content delivery, tracing its roots, examining pivotal milestones, and envisioning the future of customized digital experiences.

In the early days of the internet, web pages were static, offering a uniform experience to every visitor. Whether you were exploring news articles or shopping for products, the content presented was the same for every user. The internet was a vast, untamed landscape waiting for a touch of personalization.

As the internet matured, rule-based personalization systems made their debut. Websites started to employ basic rules to present tailored content recommendations. For instance, e-commerce platforms began suggesting products based on a user's purchase history or browsing patterns. While rudimentary, this marked the first step towards a more personalized digital experience.

The advent of collaborative filtering algorithms ushered in a new era of personalization. Drawing insights from user behavior and preferences, these algorithms began to predict what users might like based on the preferences of similar users. Streaming platforms like Netflix and music services like Spotify became pioneers in using collaborative filtering to enhance user satisfaction.

As machine learning algorithms became more sophisticated, predictive personalization took center stage (Schork, 2019). AI-driven systems now analyze vast datasets, considering not only user behavior but also contextual elements. This evolution enables platforms to predict user preferences in real-time, offering recommendations that align with users' immediate needs and interests.

Personalization has transcended content recommendations to encompass adaptive user interfaces. Websites and apps now dynamically adjust their layouts, colors, and navigation based on individual user preferences. This evolution transforms the very structure of the digital experience, ensuring that each user encounters a website uniquely tailored to their liking.

As personalization technologies advance, the ethical considerations surrounding user privacy have become more pronounced. Striking a balance between offering personalized experiences and respecting user privacy is a critical challenge. Transparency in data usage and the implementation of robust privacy measures have become integral to the evolving landscape of personalization.

The future of personalization promises hyper-personalized experiences, where AI algorithms not only understand user preferences but also adapt to users' evolving tastes in real-time. The integration of emerging technologies, such as augmented reality and voice interfaces, holds the potential to further elevate the personalized digital journey.

As we reflect on the evolution of personalization in web content delivery, one thing becomes clear – we are witnessing the crafting of tomorrow's digital experience today. From static pages to dynamic, adaptive interfaces, personalization has not only enhanced user engagement but has become an integral part of the fabric of the internet. The journey continues, and as technology advances, so too will our ability to create digital experiences that resonate uniquely with each and every user. In this era of personalized web content, the internet becomes not just a repository of information but a curated space, tailored to the preferences and interests of each individual explorer.

2.2. Comparative Study Context: User Engagement in the USA and the UK

In the ever-evolving landscape of digital interactions, understanding the nuances of user engagement across different regions is pivotal. As we embark on a comparative journey, the focus sharpens on two digital powerhouses – the United States (USA) and the United Kingdom (UK). This paper delves into the contextual intricacies that shape user engagement in these two dynamic nations, exploring the cultural, technological, and behavioral factors that contribute to a nuanced digital experience.

The digital footprints left by users in the USA and the UK paint diverse portraits. From technological infrastructure to cultural preferences, each nation brings its unique flavor to the digital landscape. Understanding these contextual differences lays the foundation for a comprehensive examination of user engagement.

Culture profoundly influences how individuals interact with digital platforms (Vicari, and Kirby, 2023, Okunade et al., 2023). In the USA, a vast and culturally diverse nation, user preferences can vary significantly from one region to another. Meanwhile, the UK's rich cultural tapestry adds its own layers of complexity. Exploring how cultural nuances impact digital behaviors provides insights into user engagement trends (Sutrisno, 2023, Adejugbe et al., 2022).

Both the USA and the UK boast advanced technological infrastructures, but the rate of adoption and the specific technologies favored can differ. Examining the technological preferences of users in each region sheds light on the tools and platforms that dominate the digital landscape.

User expectations are a driving force behind engagement. Are users in the USA more inclined towards seamless, intuitive interfaces, or do UK users prioritize certain features? Understanding the expectations of users in each region is crucial for designing digital experiences that resonate with their preferences.

The regulatory landscape shapes the user experience. Privacy laws, data protection regulations, and digital governance play pivotal roles in defining how businesses and platforms operate. A comparative analysis of the regulatory environment in the USA and the UK unveils the constraints and opportunities that influence user engagement strategies.

Examining how users consume media provides valuable insights into their engagement patterns. Do users in the USA favor certain types of content over others? How do UK users navigate the digital content landscape? Understanding these habits helps tailor content delivery strategies for optimal engagement.

The role of social media in user engagement cannot be overstated (Abbasi et al., 2023, Stanley et al., 2022). Each region may exhibit distinct preferences for social platforms, and user behavior on these platforms can vary. An exploration of social media dynamics uncovers the channels that wield the most influence in shaping user engagement.

Economic considerations, such as purchasing power and spending habits, play a significant role in shaping user engagement. By examining the economic landscape in the USA and the UK, we gain insights into how financial factors influence digital participation and consumer behaviors.

As we navigate the comparative study context of user engagement in the USA and the UK, the overarching goal is to bridge the transatlantic digital divide (Haushalter et al., 2023). Understanding the contextual factors that shape user behaviors, preferences, and expectations in each region paves the way for informed digital strategies. By appreciating the unique tapestry of the digital landscapes in the USA and the UK, businesses and digital platforms can craft experiences that resonate with users on both sides of the Atlantic. In the dynamic dance of cultural nuances, technological adoption, and regulatory frameworks, user engagement emerges as the focal point where global aspirations meet local realities.

3. The Mechanism Behind AI-Driven Personalization

In the vast expanse of the digital world, where information flows like a river, personalization has emerged as the beacon guiding users through the content maze. At the heart of this transformative experience lies a technological marvel – Artificial Intelligence (AI). This paper is a journey into the intricate mechanism behind AI-driven personalization, unraveling the magic that tailors digital experiences to our individual preferences.

As digital landscapes evolved, so did the demand for more personalized experiences. Enter Artificial Intelligence, the game-changer in the realm of personalization. Unlike traditional rule-based systems, AI possesses the capability to learn, adapt, and predict user preferences with remarkable precision.

At the core of AI-driven personalization are machine learning algorithms (Yaiprasert, and Hidayanto, 2023). These sophisticated mathematical models analyze vast datasets, identifying patterns, and making predictions based on historical user interactions. The more data these algorithms process, the smarter and more accurate they become (Bharadiya, 2023, Ukoba and Jen, 2022). AI algorithms scrutinize user behavior with the precision of a detective solving a mystery. Every click, hover, and interaction leave a digital footprint. By analyzing these patterns, AI discerns not only what users are interested in but also when and how they prefer to consume content.

The beauty of AI-driven personalization lies in its predictive prowess. Machine learning algorithms don't just understand past behaviors; they anticipate future preferences. By leveraging predictive analytics, AI can offer content recommendations that align with users' immediate needs and evolving tastes.

Collaborative filtering is a key technique within AI-driven personalization. By drawing insights from the behaviors of a large user community, these algorithms recommend content based on the preferences of users with similar tastes. It's like having a knowledgeable friend who suggests movies or products based on shared interests.

In the world of AI-driven personalization, content embeddings play a pivotal role. Think of it as a sophisticated map that places each piece of content in a multi-dimensional space. By understanding where content resides in this space, AI can accurately predict which pieces are likely to resonate with individual users.

The real-time adaptability of AI-driven personalization is a game-changer. As users interact with content, AI algorithms continuously update their understanding of preferences. This ensures that recommendations remain relevant and in tune with users' immediate needs.

AI-driven personalization is not confined to content recommendations alone. It extends to adaptive user interfaces. Websites and apps dynamically adjust their layouts, colors, and navigation based on individual user preferences. It's a seamless integration of technology and design, creating a truly personalized digital space.

In the realm of AI-driven personalization, the mechanism is a symphony of algorithms, data, and predictive analytics. It's the fusion of technology and user-centric design that crafts bespoke digital experiences. As we navigate the personalized landscapes of content recommendations, adaptive interfaces, and anticipatory experiences, the mechanism behind AI-driven personalization unveils itself as a dynamic force shaping the future of digital engagement. In this personalized digital universe, every click is not just a navigation; it's a step into a tailor-made journey, meticulously crafted by the invisible hands of Artificial Intelligence.

3.1. Overview of AI Algorithms in Personalization

In the vast and ever-expanding digital cosmos, where information is abundant, personalized experiences stand as the pinnacle of user engagement. Behind the curtain of this customization magic lies a diverse array of Artificial Intelligence (AI) algorithms, each with its unique powers to decipher user preferences and tailor digital content. This paper is your guide into the enchanting world of AI algorithms in personalization, unveiling the wizards that make our digital experiences truly magical.

In the early days of personalization, rule-based systems were the trailblazers. These systems relied on predefined rules to determine what content to show a user. While simple and effective to some extent, they lacked the adaptability and learning capabilities that define modern AI algorithms.

Machine learning algorithms form the backbone of AI-driven personalization. These algorithms learn patterns from vast datasets, continuously improving their understanding of user preferences. The more data they process, the smarter and more accurate they become in predicting what users will like.

Collaborative filtering algorithms harness the collective wisdom of users. By analyzing the behaviors and preferences of a large user community, these algorithms recommend content based on what similar users have liked. It's like having a digital companion that suggests movies, songs, or products based on shared tastes.

Content-based filtering algorithms focus on understanding the intrinsic qualities of the content itself (Basilico and Hofmann, 2004). They analyze the features of items a user has interacted with and recommend similar items. This approach is particularly effective when the system has detailed information about the content.

Matrix factorization is a sophisticated technique that unravels latent features hidden within user-item interaction matrices. By decomposing these matrices, algorithms can identify underlying patterns and relationships, providing more accurate recommendations. It's like peeling back the layers of user preferences to reveal hidden gems.

Inspired by the structure of the human brain, deep learning algorithms, particularly neural networks, have become powerhouses in personalization. They excel at processing complex patterns and hierarchical representations, making them adept at understanding intricate user behaviors and preferences.

In the realm of AI-driven personalization, understanding user intent is paramount. NLP algorithms enable systems to comprehend and respond to natural language, providing a more human-like interaction. This capability is particularly crucial for platforms that rely on user-generated content or chat interfaces.

Reinforcement learning algorithms thrive on feedback. They learn from the consequences of their recommendations, adapting and refining their strategies based on user interactions. This iterative process ensures that the system becomes increasingly adept at providing personalized suggestions.

The world of AI algorithms in personalization is a symphony where each instrument plays a unique role, contributing to the harmonious orchestration of customized digital experiences. As we navigate the realms of machine learning, collaborative filtering, deep learning, and beyond, it becomes evident that the magic of personalization lies in the diversity and adaptability of these algorithms. In this digital symphony, AI algorithms serve as the virtuoso conductors, crafting a personalized masterpiece that resonates with the unique tastes and preferences of each user.

3.2. Real-Time Adaptation and User Behavior Analysis

In the fast-paced and ever-evolving digital landscape, user behavior is akin to a dynamic dance – a constant interplay of clicks, scrolls, and interactions that paint a unique canvas of preferences. At the heart of this intricate dance lies the symbiotic relationship between real-time adaptation and user behavior analysis. This blog post explores the artistry behind these two components, unraveling how they shape personalized digital experiences and propel us into the realm of the digital now.

Real-time adaptation is the maestro orchestrating the fluidity of digital interactions. Unlike static experiences, real-time adaptation responds to user actions instantly, dynamically shaping the content landscape as users navigate through the digital realm. This adaptive approach ensures that each click is met with a corresponding tailored response, creating an experience that feels intuitive and, most importantly, personalized.

User behavior analysis is the art of decoding the intricate dance of clicks, scrolls, and dwell times. Every interaction leaves a digital footprint, and user behavior analysis is the tool that transforms these footprints into actionable insights. By scrutinizing these patterns, platforms gain a deeper understanding of user preferences, habits, and the nuances that define their digital journey.

At the core of real-time adaptation and user behavior analysis is machine learning. These sophisticated algorithms don't just analyze historical data; they predict future preferences based on current interactions. As users navigate through content, machine learning algorithms continuously adapt, ensuring that recommendations align with immediate needs and evolving tastes.

Real-time adaptation, fueled by user behavior analysis, manifests in dynamic content recommendations. As users explore a website or app, the system adapts on the fly, presenting suggestions that align with their current interests. This dynamic tailoring ensures that users are guided seamlessly through a personalized journey that reflects their ever-changing preferences.

Real-time adaptation extends beyond content recommendations to embrace adaptive user interfaces. Websites and apps dynamically adjust their layouts, colors, and navigation based on individual user preferences. This creates an environment where the digital space feels tailor-made for each user, enhancing both usability and engagement.

User behavior analysis, in tandem with real-time adaptation, provides a contextual lens into user needs. By understanding how users interact in specific contexts, platforms can anticipate their needs and deliver content or features that are not just personalized but also timely and relevant.

Real-time adaptation is a journey of constant refinement. User behavior analysis provides the feedback loops that drive iterative improvements. As users respond to recommendations, the system learns and adapts, ensuring that the personalization journey is a dynamic and evolving process.

In the intricate dance of real-time adaptation and user behavior analysis, a symphony of personalized experiences is crafted. The ability to respond to users in the digital now, predict their preferences, and dynamically shape content landscapes transforms the digital journey into an intuitive and tailored adventure. As we navigate this dynamic landscape, the fusion of technology, user-centric design, and real-time adaptability propels us into an era where digital experiences are not just personalized but are a fluid, ever-evolving reflection of individual preferences in the present moment.

4. The Essence of Personalization: Traditional vs. AI-Driven Approaches

In the vast tapestry of the digital world, personalization stands as the beacon that guides users through a sea of content. As technology evolves, so does the essence of personalization. This blog post embarks on a journey to unravel the intricate threads that define personalized experiences, comparing the traditional approaches with the transformative power of AI-driven personalization.

In the early days of the internet, personalization was a mere echo in the digital realm. Websites and platforms offered a standardized experience, presenting the same content to every visitor. The mantra was simple – one size fits all. This approach, though universal, lacked the finesse required to cater to the diverse tastes and preferences of individual users.

As technology advanced, rule-based systems emerged as the first attempt at personalization. Websites began incorporating predefined rules to adjust content based on certain parameters. For instance, an e-commerce platform might recommend products based on a user's previous purchases. While a step forward, rule-based systems were limited in their adaptability and struggled to keep pace with the evolving expectations of users.

Enter the era of AI-driven personalization, marking a paradigm shift in the essence of customization. Artificial Intelligence brought with it the ability to learn, adapt, and predict user preferences with unparalleled accuracy. Unlike rule-based systems, AI algorithms analyze vast datasets, continuously refining their understanding of individual behaviors and preferences.

Machine learning algorithms lie at the heart of AI-driven personalization. These sophisticated models unravel patterns and trends hidden within user interactions. By processing vast amounts of data, machine learning not only understands historical behaviors but predicts future preferences, creating a dynamic and anticipatory personalization experience.

Collaborative filtering, a key technique within AI-driven personalization, takes personalization to new heights. By drawing insights from the collective behaviors of users, it recommends content based on the preferences of individuals with similar tastes. It's like having a knowledgeable friend who suggests movies, music, or products based on shared interests.

Content-based filtering algorithms focus on understanding the intrinsic qualities of the content itself. They analyze features of items a user has interacted with and recommend similar items. This nuanced approach ensures that recommendations are not solely based on past interactions but also on the inherent characteristics of the content.

One of the defining features of AI-driven personalization is real-time adaptation. Unlike static personalization models, real-time adaptation responds to user actions instantly, dynamically shaping the content landscape as users navigate through the digital realm. This ensures that each interaction is met with a personalized response tailored to the user's current preferences.

AI-driven personalization extends beyond content recommendations to embrace adaptive user interfaces. Websites and apps dynamically adjust their layouts, colors, and navigation based on individual user preferences. This creates an environment where the digital space feels tailor-made for each user, enhancing both usability and engagement.

In comparing traditional approaches to the transformative power of AI-driven personalization, the essence of customization evolves from static uniformity to dynamic adaptation. The AI-driven era heralds a new dawn where personalization is not just about understanding past behaviors but anticipating future preferences. As we navigate this personalized odyssey, the essence of personalization becomes a dynamic symphony, with AI algorithms as the virtuoso conductors, crafting harmonies of tailored experiences that resonate uniquely with each user. The journey from the

traditional to the AI-driven is not just a leap; it's a transformative odyssey, ushering in an era where the digital experience is not just personalized but is, in essence, a reflection of individuality in the digital realm.

5. AI-Driven Personalization in Action

In the vast digital landscape, where content is abundant and choices are endless, personalization has become the compass guiding users through the labyrinth. At the forefront of this revolution stands Artificial Intelligence (AI), reshaping the way we experience the digital world. This blog post is a journey into the dynamic realm of AI-driven personalization, showcasing how it unfolds in action, transforming user experiences from generic to truly bespoke.

At the heart of AI-driven personalization lies machine learning, the architectural force that shapes dynamic and adaptive experiences. Machine learning algorithms analyze user behaviors, identifying patterns and trends to understand individual preferences. As users interact, the system learns and evolves, creating a personalized landscape that aligns seamlessly with their tastes.

Collaborative filtering, a cornerstone of AI-driven personalization, taps into the collective wisdom of users. By drawing insights from the behaviors and preferences of a large user community, collaborative filtering recommends content based on what similar users have liked. It's akin to having a knowledgeable companion, suggesting movies, songs, or products based on shared tastes.

Content-based filtering algorithms focus on understanding the intrinsic qualities of the content itself. By analyzing features of items a user has interacted with, these algorithms recommend similar items. This nuanced approach ensures that recommendations are not solely based on past interactions but also on the inherent characteristics of the content.

One of the defining features of AI-driven personalization is real-time adaptation. Unlike traditional static models, real-time adaptation responds to user actions instantly. As users navigate through websites or apps, the system dynamically adjusts, presenting recommendations and content that align with their current preferences. It's a symphony of immediate responses, creating a personalized journey in the digital now.

AI-driven personalization extends beyond content recommendations to embrace adaptive user interfaces. Websites and apps dynamically adjust their layouts, colors, and navigation based on individual user preferences. This level of adaptation ensures that the digital space feels tailor-made for each user, enhancing usability and engagement.

AI algorithms don't just understand past behaviors; they anticipate future preferences through predictive personalization. By leveraging predictive analytics, the system offers content suggestions that align with users' immediate needs and evolving tastes. It's a forward-looking approach that transforms the user experience from reactive to proactive.

In the realm of AI-driven personalization, understanding user intent is paramount. Natural Language Processing (NLP) algorithms enable systems to comprehend and respond to natural language, providing a more human-like interaction. This capability is particularly crucial for platforms that rely on user-generated content or chat interfaces.

AI-driven personalization is a journey of continuous refinement. Feedback loops, fueled by user interactions, drive iterative improvements. As users respond to recommendations, the system learns and adapts, ensuring that the personalization journey is a dynamic and evolving process.

In the realm of AI-driven personalization, the essence lies in crafting experiences, one interaction at a time. Machine learning, collaborative filtering, real-time adaptation, and adaptive interfaces converge to create a landscape where the digital experience is not just tailored but is a living, breathing entity that evolves with each user click. As we traverse this dynamic realm, AI-driven personalization emerges not just as a technology but as a transformative force, shaping the digital journey into a truly personalized odyssey. It's the fusion of technology and user-centric design that turns the digital landscape into a canvas of personalized experiences, where every click is not just a navigation but a step into a world crafted uniquely for each individual explorer.

5.1. E-Commerce Platforms

In the age of digital transformation, the realm of commerce has undergone a revolutionary shift, transcending physical boundaries and extending its reach into the vast expanse of the internet. E-commerce platforms have emerged as the cornerstone of this transformation, reshaping the way businesses operate and consumers shop. This blog post is a deep

dive into the unparalleled world of e-commerce platforms, exploring their evolution, key players, and the impact they have on the global marketplace.

The journey of e-commerce platforms traces back to the early days of the internet when the concept of online shopping was a novelty. From simple online catalogs to sophisticated platforms offering a myriad of products and services, e-commerce has evolved into a dynamic and integral part of the digital economy. The transition from bricks-and-mortar stores to virtual storefronts marked a paradigm shift, enabling businesses to reach global audiences with unprecedented ease.

E-commerce platforms are the digital marketplaces that connect sellers with buyers, providing a seamless online shopping experience. Key features of E-commerce platforms include, shopping cart, product Listings, checkout process, user accounts, search and filters. A digital catalog showcasing products or services as shown in figure 1.

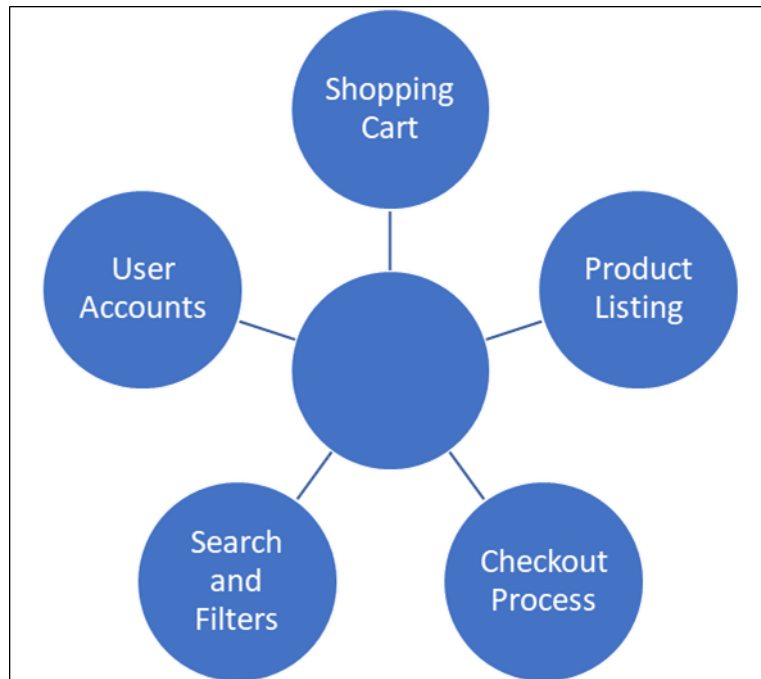


Figure 1 Schematic of E-commerce platforms features

An interactive tool for users to add and manage selected items. Secure payment gateways and streamlined checkout procedures. Personalized accounts for tracking orders, preferences, and history. Efficient tools for users to navigate and find desired products.

Several e-commerce behemoths dominate the global landscape, each bringing its unique approach and strengths to the table. Some of them include Amazon, Alibaba, eBay, Shopify. Amazon is an e-commerce titan that started as an online bookstore and expanded into a diverse marketplace, offering everything from electronics to groceries. Alibaba is a Chinese giant that connects businesses globally, specializing in wholesale trade and online retail. eBay is a pioneer in online auctions and consumer-to-consumer sales, fostering a diverse and dynamic marketplace. Shopify is empowering businesses to set up their online stores with ease, offering a range of customizable solutions.

E-commerce platforms cater to a spectrum of business models, including Business-to-Consumer, Business-to-Business, Consumer-to-Consumer, Direct-to-Consumer as shown in figure 2. Business-to-Consumer (B2C) is a retailer selling directly to individual consumers (Grange, Benbasat, and Burton-Jones, 2020, Dou, and Chou, 2002). Business-to-Business (B2B) which facilitates transactions between businesses (Reinhold, Zach, and Laesser, 2020). Consumer-to-Consumer (C2C) a platform that enables consumers to sell to each other (Yrjölä et al., 2017). Direct-to-Consumer (D2C) a brand selling their products directly to consumers (Gunz, 2023).

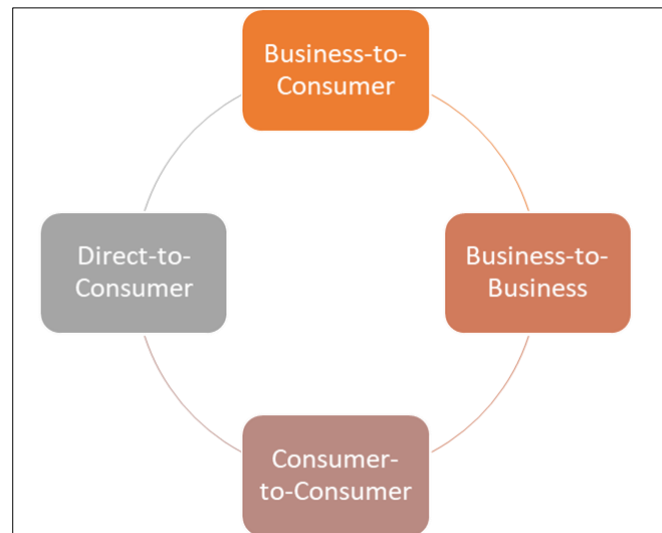


Figure 2 E-commerce platforms spectrum of business models

The proliferation of smartphones has given rise to M-Commerce, allowing users to shop on the go (Khaskheli, Jun, and Bhuiyan, 2017). E-commerce platforms have adapted by providing mobile-friendly interfaces and apps, further expanding their reach and accessibility.

While e-commerce platforms have revolutionized the retail landscape, they face challenges such as cybersecurity threats, data privacy concerns, and the need for continuous innovation (Devi et al., 2023, Adebukola et al., 2022). However, these challenges also present opportunities for growth and improvement, fostering a competitive environment that benefits both businesses and consumers.

Artificial Intelligence (AI) and personalization are transforming the e-commerce experience (Khrais, 2020, Sanni et al., 2024). AI-driven algorithms analyze user behavior, predict preferences, and offer personalized recommendations. This enhances user engagement, increases conversion rates, and contributes to a more satisfying shopping journey.

The future of e-commerce platforms holds exciting possibilities. Advancements in technologies like augmented reality, virtual reality, and blockchain are poised to redefine the online shopping experience. Additionally, the integration of sustainability practices and ethical considerations is gaining prominence, reflecting the evolving values of consumers.

E-commerce platforms stand as the architects of a new era in retail, where borders are virtual, and the marketplace is limitless. As technology continues to evolve and consumer expectations rise, these platforms will play a pivotal role in shaping the future of commerce. From global giants to small businesses, the world of e-commerce offers a stage for innovation, convenience, and boundless opportunities, creating a digital marketplace where every click opens the door to a world of possibilities.

6. Ethical Considerations in AI-Driven Personalization

In the era of personalized digital experiences, where Artificial Intelligence (AI) algorithms tailor content to individual preferences, ethical considerations come to the forefront (Detopoulou et al., 2023, Shin 2023). As AI-driven personalization continues to evolve, it raises important questions about privacy, transparency, and the responsible use of data. This blog post delves into the ethical considerations surrounding AI-driven personalization, exploring the challenges and proposing ways to navigate this complex terrain.

AI-driven personalization wields the power to enhance user experiences, increase engagement, and boost business outcomes. However, with great power comes great responsibility. The ethical use of personalization requires a delicate balance between customization and the protection of user privacy and rights.

One of the primary ethical considerations in AI-driven personalization revolves around user privacy. Collecting and analyzing user data to create personalized experiences must be done transparently and with explicit user consent.

Striking the right balance ensures that personalization enhances user experiences without compromising individual privacy.

AI algorithms operate as black boxes, making decisions based on complex computations. Ensuring transparency in these algorithms is crucial for building trust. Users should have a clear understanding of how their data is being used and how personalized recommendations are generated. Transparent algorithms foster a sense of accountability and empower users to make informed choices.

AI-driven personalization algorithms must be designed and trained to avoid bias and discrimination. If algorithms inadvertently favor certain demographics over others, it can perpetuate inequalities. Ethical considerations require constant monitoring and adjustment to ensure fair and inclusive personalization for all users, regardless of their background.

Obtaining informed consent is a cornerstone of ethical personalization. Users should be aware of how their data is used and have the ability to opt in or out of personalized experiences. Providing users with control over their preferences and data ensures a more ethical and respectful approach to personalization.

As personalization relies on vast amounts of user data, robust security measures are essential. Ethical considerations demand that businesses prioritize data security, implementing encryption, secure storage, and other measures to protect user information from unauthorized access or breaches.

While personalization aims to create tailored experiences, there is a fine line between customization and intrusiveness. Ethical personalization respects user boundaries, avoiding overly invasive practices. Bombarding users with too many requests for information or displaying excessively targeted content can lead to a negative user experience.

Ethical considerations in AI-driven personalization are not static; they require ongoing monitoring and improvement. Businesses should be open to feedback, conduct regular audits of their algorithms, and iterate on their personalization strategies to align with evolving ethical standards.

As AI-driven personalization reshapes the digital landscape, the ethical considerations surrounding its implementation become increasingly critical. Navigating this complex terrain involves a commitment to user privacy, transparency, fairness, and continuous improvement. Striking a balance between personalization and ethical responsibility ensures that the digital experiences of tomorrow are not only tailored but also respectful, transparent, and considerate of the diverse needs and values of users. In the ethical journey of AI-driven personalization, businesses hold the compass, and it's their commitment to responsible practices that will shape the course toward a more personalized yet ethical digital future.

7. AI-Driven Personalization Strategies Comparative Analysis between USA vs. UK

In the dynamic realm of AI-driven personalization, strategies play a pivotal role in shaping the user experience. As two leading digital landscapes, the United States and the United Kingdom have distinct approaches to personalization. This blog post conducts a comparative analysis of AI-driven personalization strategies in the USA and the UK, exploring the similarities, differences, and the unique flavors each region brings to the digital table.

In the USA, personalization strategies often reflect the vast diversity of the population. AI algorithms consider cultural nuances, regional preferences, and individual tastes, creating a tapestry of personalized experiences. In contrast, the UK's personalization strategies might delve into the rich history, traditions, and varied preferences of its diverse population, ensuring that content resonates with the local cultural context.

Both the USA and the UK navigate a complex regulatory landscape, with data privacy and compliance at the forefront. In the USA, businesses often adhere to a patchwork of state-specific regulations, while the UK follows the General Data Protection Regulation (GDPR). Personalization strategies in each region must carefully align with these regulations to ensure ethical and legal practices in handling user data.

E-commerce giants in the USA and the UK leverage AI-driven personalization to enhance the shopping experience. Strategies may differ based on consumer behaviors and expectations. While the USA might emphasize expansive product recommendations and tailored promotions, the UK might focus on balancing personalization with a touch of British elegance and understated refinement.

In the realm of content platforms, personalization strategies cater to diverse tastes in both regions. The USA might emphasize the eclectic and vast interests of its population, offering recommendations across a spectrum of genres. In the UK, personalization strategies could infuse a touch of British humor, historical references, or regional content preferences to resonate with local audiences.

Social media platforms in the USA and the UK employ AI-driven personalization to craft engaging digital conversations. Strategies might vary in tone and style—while the USA embraces a dynamic and vibrant approach, the UK might weave in a more reserved yet witty touch to align with the cultural nuances of its users.

AI-driven personalization in news platforms addresses the diverse information landscapes of the USA and the UK. Strategies focus on tailoring news feeds based on regional and cultural relevance. In the USA, personalization might prioritize the hyper-local, while the UK might strike a balance between national and international news, catering to the global perspectives of its audience.

The integration of personalization across platforms is a key strategy in both the USA and the UK. AI algorithms work to create a seamless experience, ensuring that user preferences and behaviors are recognized and reflected consistently across websites, apps, and other digital touchpoints.

Both regions prioritize user engagement metrics to measure the success of personalization strategies. Key performance indicators (KPIs) may include click-through rates, conversion rates, and user satisfaction scores. The USA and the UK align their strategies with these metrics to continuously refine and optimize personalization efforts.

In the comparative analysis of AI-driven personalization strategies between the USA and the UK, it becomes evident that while there are common threads, each region weaves a unique digital narrative. Cultural nuances, regulatory landscapes, and the diverse tastes of users shape personalization strategies, creating experiences that resonate with the distinct identities of these digital landscapes. As the USA and the UK continue their digital odyssey, the evolution of AI-driven personalization strategies will be a dynamic journey, reflecting the ever-changing preferences and expectations of users in these vibrant and influential regions.

7.1. Recommendation and Conclusion

Leverage the cultural diversity within the USA to refine personalization strategies. Consider regional preferences, trending topics, and local events to tailor content for diverse audiences. Embrace the rich cultural heritage of the UK in personalization strategies. Infuse content with references to British history, traditions, and humor to create a more resonant and engaging user experience.

USA navigate the complex regulatory landscape with a commitment to user privacy. Implement transparent opt-in/opt-out mechanisms, clearly communicate data usage policies, and ensure compliance with state-specific regulations. UK continue adhering to GDPR standards, emphasizing transparency in data processing. Prioritize user consent, provide robust data security measures, and regularly update users on how their data is utilized in personalized experiences.

USA explore innovative e-commerce personalization features, such as dynamic pricing models and interactive shopping experiences. Utilize AI to understand individual shopping behaviors and preferences to provide more accurate product recommendations.

UK combine personalization with a touch of British sophistication in e-commerce strategies. Integrate personalized promotions with a focus on product quality, customer reviews, and tailored shopping journeys to enhance user satisfaction.

Both the USA and UK should Strengthen the integration of personalization across various digital platforms to create a cohesive user experience. Ensure that user preferences seamlessly transition between websites, apps, and social media, fostering a consistent and personalized digital journey.

USA should capitalize on the dynamic and diverse social media landscape. Implement strategies that encourage user-generated content, real-time engagement, and personalized social feeds to maximize user interaction. UK should infuse social media strategies with a blend of British wit and cultural references. Foster meaningful digital conversations by tailoring content that aligns with local nuances and resonates with the British sense of humor.

8. Conclusion

The comparative study of AI-driven personalization in web content delivery between the USA and the UK unveils a nuanced landscape shaped by cultural, regulatory, and user engagement factors. Both regions showcase a commitment to providing tailored experiences, acknowledging the importance of user privacy and regulatory compliance.

In the USA, the emphasis lies in navigating the intricate web of state-specific regulations, catering to the diverse cultural landscape, and innovating e-commerce strategies to meet the expectations of a dynamic user base. Meanwhile, the UK capitalizes on its rich cultural heritage, aligning personalization strategies with British sensibilities, and maintaining a robust commitment to GDPR standards.

As these regions continue to evolve, the recommendations aim to further refine AI-driven personalization strategies. By embracing cultural nuances, prioritizing user privacy, innovating e-commerce experiences, fostering cross-platform synergy, and dynamically engaging users on social media, both the USA and the UK can elevate their personalized digital narratives.

In the ever-evolving realm of AI-driven personalization, the key to success lies in the ability to adapt, iterate, and align strategies with the ever-changing preferences and expectations of users. The digital odyssey continues, and the journey towards more engaging, personalized experiences in the USA and the UK is a dynamic and ongoing process.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

References

- [1] Abbasi, A.Z., Tsiotsou, R.H., Hussain, K., Rather, R.A. and Ting, D.H., 2023. Investigating the impact of social media images' value, consumer engagement, and involvement on eWOM of a tourism destination: A transmittal mediation approach. *Journal of Retailing and Consumer Services*, 71, p.103231.
- [2] Adebukola, A. A., Navya, A. N., Jordan, F. J., Jenifer, N. J., & Begley, R. D. (2022). Cyber Security as a Threat to Health Care. *Journal of Technology and Systems*, 4(1), 32-64.
- [3] Adejugbe, I.T., Olowonubi, J.A., Aigbovbiosa, J.O., Komolafe, O., Ogunkoya, A.K., Alasoluyi, J.O. and Olusunle, S.O.O., 2022. Design and Development of a Low Cost Laterite Sieving Machine. *Physical Science International Journal*, 26(6), pp.29-38.
- [4] Ahuja, A.S., Polascik, B.W., Doddapaneni, D., Byrnes, E.S. and Sridhar, J., 2023. The digital metaverse: Applications in artificial intelligence, medical education, and integrative health. *Integrative Medicine Research*, 12(1), p.100917.
- [5] Bag, S., Srivastava, G., Bashir, M.M.A., Kumari, S., Giannakis, M. and Chowdhury, A.H., 2022. Journey of customers in this digital era: Understanding the role of artificial intelligence technologies in user engagement and conversion. *Benchmarking: An International Journal*, 29(7), pp.2074-2098.
- [6] Basilico, J. and Hofmann, T., 2004, July. Unifying collaborative and content-based filtering. In *Proceedings of the twenty-first international conference on Machine learning* (p. 9).
- [7] Bharadiya, J.P., 2023. Machine learning and AI in business intelligence: Trends and opportunities. *International Journal of Computer (IJC)*, 48(1), pp.123-134.
- [8] Borges, A.F., Laurindo, F.J., Spínola, M.M., Gonçalves, R.F. and Mattos, C.A., 2021. The strategic use of artificial intelligence in the digital era: Systematic literature review and future research directions. *International Journal of Information Management*, 57, p.102225.
- [9] Cain, J. and Pino, Z., 2023. Navigating Design, Data, and Decision in an Age of Uncertainty. *She Ji: The Journal of Design, Economics, and Innovation*, 9(2), pp.197-212.
- [10] Cao, J., Lam, K.Y., Lee, L.H., Liu, X., Hui, P. and Su, X., 2023. Mobile augmented reality: User interfaces, frameworks, and intelligence. *ACM Computing Surveys*, 55(9), pp.1-36.

- [11] Davies, J.N., Verovko, M., Verovko, O. and Solomakha, I., 2020, June. Personalization of e-learning process using ai-powered chatbot integration. In *International scientific-practical conference* (pp. 209-216). Cham: Springer International Publishing.
- [12] De, S.K. and Radha Krishna, P., 2002. Mining web data using clustering technique for web personalization. *International Journal of Computational Intelligence and Applications*, 2(03), pp.255-265.
- [13] Detopoulou, P., Voulgaridou, G., Moschos, P., Levidi, D., Anastasiou, T., Dedes, V., Diplari, E.M., Fourfour, N., Giaginis, C., Panoutsopoulos, G.I. and Papadopoulou, S.K., 2023. Artificial intelligence, nutrition, and ethical issues: A mini-review. *Clinical Nutrition Open Science*.
- [14] Devi, B., Lodhwal, R.K., Patil, K.B., Borah, C. and Bajaj, K.K., 2023. Role of E-Commerce in Transforming Retail Marketing. *Tuijin Jishu/Journal of Propulsion Technology*, 44(4), pp.3186-3193.
- [15] Dou, W. and Chou, D.C., 2002. A structural analysis of business-to-business digital markets. *Industrial marketing management*, 31(2), pp.165-176.
- [16] Gao, B., Wang, Y., Xie, H., Hu, Y. and Hu, Y., 2023. Artificial Intelligence in Advertising: Advancements, Challenges, and Ethical Considerations in Targeting, Personalization, Content Creation, and Ad Optimization. *SAGE Open*, 13(4), p.21582440231210759.
- [17] Gliozzo, G., Pettorelli, N. and Haklay, M., 2016. Using crowdsourced imagery to detect cultural ecosystem services: a case study in South Wales, UK. *Ecology and Society*, 21(3).
- [18] Grange, C., Benbasat, I. and Burton-Jones, A., 2020. A network-based conceptualization of social commerce and social commerce value. *Computers in Human Behavior*, 108, p.105855.
- [19] Grivokostopoulou, F., Perikos, I. and Hatzilygeroudis, I., 2014, December. Using semantic web technologies in a web based system for personalized learning AI course. In *2014 IEEE Sixth International Conference on Technology for Education* (pp. 257-260). IEEE.
- [20] Gunz, C., (2023). *Key success factors for direct-to-consumer (D2C) business models in e-commerce* (Doctoral dissertation, FH Vorarlberg (Fachhochschule Vorarlberg)).
- [21] Haushalter, K., Pritschet, S.J., Long, J.W., Edwards, C.G., Boyland, E.J., Evans, R.K. and Masterson, T.D., 2023. User engagement with a popular food brand before, during and after a multi-day interactive marketing campaign on a popular live streaming platform. *Public Health Nutrition*, 26(4), pp.716-724.
- [22] Ikechukwu, I.J., Anyaoha, C., Abraham, K.U. and Nwachukwu, E.O., 2019. Transient analysis of segmented Di-trapezoidal variable geometry thermoelement. NIEEE Nsukka Chapter Conference. pp.338-348
- [23] Ilieva, R.T. and McPhearson, T., 2018. Social-media data for urban sustainability. *Nature Sustainability*, 1(10), pp.553-565.
- [24] Jackson, G. and Ahuja, V., 2016. Dawn of the digital age and the evolution of the marketing mix. *Journal of Direct, Data and Digital Marketing Practice*, 17, pp.170-186.
- [25] Juneja, P. and Mitra, T., 2021, May. Auditing e-commerce platforms for algorithmically curated vaccine misinformation. In *Proceedings of the 2021 chi conference on human factors in computing systems* (pp. 1-27).
- [26] Khaskheli, A., Jun, Y. and Bhuiyan, M.A., 2017. M-commerce and mobile apps: opportunities for MSMEs in developing countries. *Marketing*, 2(2), pp.20-23.
- [27] Khrais, L.T., 2020. Role of artificial intelligence in shaping consumer demand in E-commerce. *Future Internet*, 12(12), p.226.
- [28] Kiu, C.C. and Lee, C.S., 2017. E-commerce market trends: a case study in leveraging Web 2.0 technologies to gain and improve competitive advantage. *International Journal of Business Information Systems*, 25(3), pp.373-392.
- [29] Labrecque, L.I., Vor Dem Esche, J., Mathwick, C., Novak, T.P. and Hofacker, C.F., 2013. Consumer power: Evolution in the digital age. *Journal of Interactive Marketing*, 27(4), pp.257-269.
- [30] Lalmas, M., O'Brien, H. and Yom-Tov, E., 2022. *Measuring user engagement*. Springer Nature.
- [31] Ma, L. and Sun, B., 2020. Machine learning and AI in marketing—Connecting computing power to human insights. *International Journal of Research in Marketing*, 37(3), pp.481-504.

- [32] Maduka, C. P., Adegoke, A. A., Okongwu, C. C., Enahoro, A., Osunlaja, O., & Ajogwu, A. E. (2023). Review Of Laboratory Diagnostics Evolution In Nigeria's Response To COVID-19. *International Medical Science Research Journal*, 3(1), 1-23.
- [33] Malik, Z.K. and Fyfe, C., 2012. Review of web personalization. *Journal of Emerging Technologies in Web Intelligence*, 4(3), pp.285-296.
- [34] Mobasher, B., Cooley, R. and Srivastava, J., 2000. Automatic personalization based on web usage mining. *Communications of the ACM*, 43(8), pp.142-151.
- [35] O'Brien, H. and Cairns, P. eds., 2016. Why engagement matters: Cross-disciplinary perspectives of user engagement in digital media. Springer.
- [36] Okunade, B. A., Adediran, F. E., Maduka, C. P., & Adegoke, A. A. (2023). Community-Based Mental Health Interventions In Africa: A Review And Its Implications For Us Healthcare Practices. *International Medical Science Research Journal*, 3(3), 68-91.
- [37] Olowonubi, J.A., Adejgbe, I.T., Fatoude, S.A., Aigbovbiosa, J.O., Oyegunwa, O.A., Komolafe, O. and Ogunkoya, A.K., 2022. Design and Development of a Petrol-Powered Hammer Mill Machine. *Physical Science International Journal*, 26(7), pp.33-41.
- [38] Rahman, M.S., Bag, S., Hossain, M.A., Fattah, F.A.M.A., Gani, M.O. and Rana, N.P., 2023. The new wave of AI-powered luxury brands online shopping experience: The role of digital multisensory cues and customers' engagement. *Journal of Retailing and Consumer Services*, 72, p.103273.
- [39] Rahman, R.U. and Tomar, D.S., 2021. Threats of price scraping on e-commerce websites: Attack model and its detection using neural network. *Journal of Computer Virology and Hacking Techniques*, 17, pp.75-89.
- [40] Rane, N., Choudhary, S. and Rane, J., 2023. Enhanced product design and development using Artificial Intelligence (AI), Virtual Reality (VR), Augmented Reality (AR), 4D/5D/6D Printing, Internet of Things (IoT), and blockchain: A review. *Virtual Reality (VR), Augmented Reality (AR) D*, 4.
- [41] Reinhold, S., Zach, F.J. and Laesser, C., 2020. E-business models in tourism. *Handbook of e-Tourism*, pp.1-30.
- [42] Rula, J.P., Navda, V., Bustamante, F.E., Bhagwan, R. and Guha, S., 2014, February. No "one-size fits all" towards a principled approach for incentives in mobile crowdsourcing. In *Proceedings of the 15th workshop on mobile computing systems and applications* (pp. 1-5).
- [43] Sanni, O., Adeleke, O., Ukoba, K., Ren, J. and Jen, T.C., 2024. Prediction of inhibition performance of agro-waste extract in simulated acidizing media via machine learning. *Fuel*, 356, p.129527.
- [44] Schork, N.J., 2019. Artificial intelligence and personalized medicine. *Precision medicine in Cancer therapy*, pp.265-283.
- [45] Shin, D., 2023. Embodying algorithms, enactive artificial intelligence and the extended cognition: You can see as much as you know about algorithm. *Journal of Information Science*, 49(1), pp.18-31.
- [46] Stanley, B.D., Oni, T.A., Idowu, A.S. and Fatoude, S.A., 2022. Development of a Domestic Water Medium Rice De-Stoning Machine. *Asian Journal of Advances in Agricultural Research*, 20(4), pp.23-34.
- [47] Sutrisno, S., 2023. Changes in Media Consumption Patterns and their Implications for People's Cultural Identity. *Technology and Society Perspectives (TACIT)*, 1(1), pp.18-25.
- [48] Uddin, S.U., Chidolue, O., Azeez, A. and Iqbal, T., 2022, June. Design and Analysis of a Solar Powered Water Filtration System for a Community in Black Tickle-Domino. In *2022 IEEE International IOT, Electronics and Mechatronics Conference (IEMTRONICS)* (pp. 1-6). IEEE.
- [49] Ukoba, K. and Jen, T.C., 2022. Biochar and Application of Machine Learning: A Review. *Biochar-Productive Technologies, Properties and Application*.
- [50] Van Zanten, B.T., Van Berkel, D.B., Meentemeyer, R.K., Smith, J.W., Tieskens, K.F. and Verburg, P.H., 2016. Continental-scale quantification of landscape values using social media data. *Proceedings of the National Academy of Sciences*, 113(46), pp.12974-12979.
- [51] Vicari, S. and Kirby, D., 2023. Digital platforms as socio-cultural artifacts: developing digital methods for cultural research. *Information, Communication & Society*, 26(9), pp.1733-1755.
- [52] Wang, C.L., 2021. New frontiers and future directions in interactive marketing: inaugural Editorial. *Journal of Research in Interactive Marketing*, 15(1), pp.1-9.

- [53] Yaiprasert, C. and Hidayanto, A.N., 2023. AI-driven ensemble three machine learning to enhance digital marketing strategies in the food delivery business. *Intelligent Systems with Applications*, 18, p.200235.
- [54] Yrjölä, M., Rintamäki, T., Saarijärvi, H. and Joensuu, J., 2017. Consumer-to-consumer e-commerce: outcomes and implications. *The International Review of Retail, Distribution and Consumer Research*, 27(3), pp.300-315.
- [55] Zimmermann, R., Mora, D., Cirqueira, D., Helfert, M., Bezbradica, M., Werth, D., Weitzl, W.J., Riedl, R. and Auinger, A., 2023. Enhancing brick-and-mortar store shopping experience with an augmented reality shopping assistant application using personalized recommendations and explainable artificial intelligence. *Journal of Research in Interactive Marketing*, 17(2), pp.273-298