

4th INTERNATIONAL CONFERENCE ON
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AI-Enhanced Consumer Insights: Leveraging Behavioural Analytics for Hyper-Personalised Marketing Strategies

Abstract: In the dynamic landscape of modern marketing, hyper-personalisation is emerging as a key differentiator driven by advancements in AI and behavioural analytics. This survey paper comprehensively explores the role of AI in enhancing consumer insights through advanced segmentation, dynamic interest modelling, and privacy-preserving techniques for hyper personalised marketing. Leveraging approaches such as Large Language Models (LLMs), hyperbolic embeddings, and federated learning, recent methodologies address the challenges of data privacy, user segmentation, and adaptive consumer targeting across industries such as e-commerce and FMCG (Fast-Moving Consumer Goods). Techniques, such as UNICON and GAN-based data generation, enable real-time consumer segmentation, revealing latent patterns for personalised engagement.

This study synthesises findings from multimodal and multi-behaviour recommendation systems that integrate structured and unstructured consumer data, significantly enhancing marketing precision and diversity while mitigating issues such as the cold-start problem and limited user signals. In addition, we discuss experimentation frameworks in personalisation that leverage causal inference and observational data, enabling more nuanced campaign evaluations and insights into consumer response heterogeneity. In FMCG, AI applications such as predictive analytics, customer segmentation, and personalised recommendations have shown substantial impacts, underscoring the ethical considerations and implementation challenges associated with AI in marketing.

This survey concludes with an analysis of current challenges, ranging from adapting to evolving consumer preferences to addressing privacy regulations under the GDPR and CCPA, and outlines future directions, such as integrating dynamic user interest models and leveraging zero-party data. This comprehensive examination aims to guide researchers and practitioners in implementing and refining AI-driven marketing strategies that balance personalisation with ethical responsibility, data privacy, and sustainable consumer engagement.

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Biography: Yomi Omotoso is a Senior Software Engineer and Technical Leader with over six years of experience in developing high-performance, scalable applications. Specialising in PHP, JavaScript, and blockchain, he has built a strong reputation in fintech, e-commerce, and logistics. As a member of the MBCS and an MBA holder in E-commerce, Yomi combines technical depth with strategic insights, excelling in cloud architecture, API development, and system optimisation. His work focuses on managing and developing robust, scalable technologies designed to support billions of users, particularly in payment solutions. Additionally, he is the Convener of the UK Tech Career Summit, a platform through which he passionately guides professionals in navigating the evolving tech landscape.

Yomi is also an ADPList Mentor and sought-after speaker, frequently addressing topics in EdTech, FinTech, and value-added service (VAS) products. Known for his detail-oriented approach and effective team coordination, he prioritizes customer satisfaction and aligns his technical projects with overarching business goals. His leadership style ensures the successful deployment of solutions that can handle millions of daily transactions, reflecting his commitment to excellence in both technical delivery and user-centric innovation.