

Tech-Driven Neuromarketing: Advancing Neuromarketing Through Technological Application

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Abstract

This abstract seeks to examine how technology is being applied to the research of neuromarketing through various neuroimaging techniques, such as EEG (electroencephalography), machine learning applied to the prediction of consumer preferences and late positive potential as an indicator of emotional responses. Using an extensive literary review and keyword cluster mapping, this study aims to map the application of technology across the extensive and continuous research of neuromarketing including an analysis over the last 5 years of publications, authors and keywords that showcase the use of several technological applications. Neuromarketing is evolving through the integration of converging technologies such as neuroimaging, artificial intelligence, machine learning, and virtual/augmented reality. Marketing can now predict consumer behavior with more precise insights into cognitive and emotional responses provided by these advancements. The findings demonstrate the effectiveness of techniques like EEG, fNIRS, and AI-based models in understanding subconscious reactions to marketing stimuli, offering personalized strategies and improving marketing outcomes. Based on the authors' findings, it is determined that the application of technologies in neuromarketing—such as neuroimaging tools (like EEG and fNIRS), machine learning, artificial intelligence, and immersive technologies (like VR/AR)—is fundamentally transforming how consumer behavior is analyzed and these advancements improve predictive accuracy, which allows marketers to develop more personalized and emotionally targeted strategies. In conclusion, the application of various technological devices on the research of neuromarketing have come to speed its evolution and also prove its importance in today's consumer behavior studies.

Keywords: Consumer Marketing, Advertising, Technology Impact, Technological Adoption