

A Study of Artificial Intelligence in Marketing

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Abstract - Artificial intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. The term may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem-solving .As such, AI in marketing is a crucial topic to research. By analysing its current applications, its potential usecases in the near future, how to implement it and its areas for improvement, we can achieve ahigh-level understanding of AI's long-term implications in marketing.AI offers an improvement to current marketing tactics, as well as entirely new ways ofcreating and distributing value to customers.

Keywords - intelligence, learning, problem solving, high level understanding, marketing, improvement, artificial intelligence

INTRODUCTION

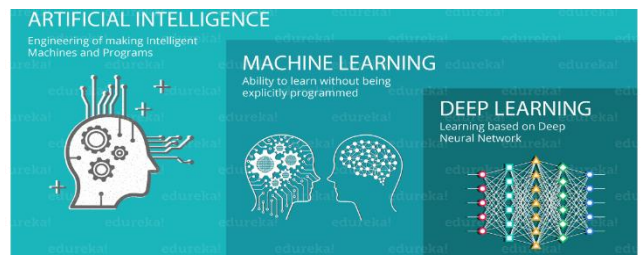
Artificial Intelligence (AI) is a category of technologies and field of study that has been around for decades yet has only recently been feasible to implement. Despite its relative infancy in the market, applications of AI already boast impressive efficacy across industries, particularly in marketing. Recent advancements in AI technology and growing numbers of use cases demonstrating its effectiveness have garnered excitement amongst marketers. [11] The "AI Marketing Era," as it may appropriately be labeled, entails fundamental changes to the manner in which marketers interact with customers, the tactics, and tools they use to achieve their goals, the skills they regard highly in the workplace, and the nature of their day-to-day responsibilities. [1] Akin to the magnitude of change brought forth by the advent ofcomputers, artificial intelligence carries the potential to change the nature of marketing drastically. It is for this reason that the topic of artificial intelligence in marketing requires in-depth research and analysis to prepare for changes to come.

Scope and Methodology

This paper analyses the impact of artificial intelligence on marketing at micro and macro levels. Given the wide-ranging topic of AI and its many different applications, I have limited the scope of this paper to only its impact on marketing.[11] The topic of AI in marketing itself may be vast enough to justify narrowing the scope of research down further into specific applications and use cases.[10] However, my intentions for this paper were to address the issue in a manner that provides a natural entry point for marketers to begin learning about AI in their field, while enough detail for each application and use case to offer

novel insights. AI in marketing is complex and quickly evolving. As such, my research faces limitations of the potential for promptly becoming outdated.

Defining Artificial Intelligence



Artificial Intelligence (AI)

Artificial Intelligence is defined as computerized systems that intake data to perform tasks of intelligent beings in a way that maximizes its chances of success. There are a wide variety of different kinds of AI, so the term could be considered "a portfolio of technologies" as described by GuruduthBanavar, overseer of IBM's research on AI (Kaput, 2016). [3]These AI technologies serve different purposes and are being developed at different rates, but they are all focused on mimicking human intelligence in computers to make their operations "smart." AI is divided into two main categories:

Artificial General Intelligence (AGI)

Also known as Strong AI, AGI can theoretically perform any tasks that an intelligent being could perform. This category of AI is commonly depicted in science fiction and can be thought of as AI that can perform a wide variety of tasks and act like humans. [2] Given the complexity of human nature and how little we truly know about how our minds work, there have not been any successful attempts at creating true AGI. [3]For all intensive purposes, AGI will not be discussed much for the remainder of this paper given its current state of development does not hold any practical implications for marketers.[11]

Narrow AI

Also known as Weak AI, Narrow AI is effective at performing specific tasks. [11]It focuses on becoming advanced at one domain of cognitive abilities, such as image recognition, predictive analysis, driving cars, and segmenting groups of customers. This is the most common form of AI and is seen in our day-to-day lives as spam mail bots and recommendation systems on many websites, such as Amazon's recommended product suggestions and Netflix's personalized movie/TV show recommendations.

Machine Learning (ML)

Machine learning is a subset of AI that uses computer programs to learn and improve upon themselves and process

large amounts of data. Machine learning is the aspect of AI that allows for it to learn without being explicitly coded to do so. [2]It's the fastest growing form of AI and is the basis for many of the AI most relevant to marketers. In most cases, a set of training data is used to teach a the ML system how to identify the correct output for a random given input, then continually improves upon itself over time as more data points are processed. [4]

Deep Learning (DL)

A subcategory of machine learning that allows for an effective way of unsupervised learning through the use of neural networks. These neural networks are modeled after the human brain and utilize a network of interconnected "neurons" or nodes to analyze data in a non-linear way. DL was first created in the mid-1900's but was not thought to be practical at the time.[4] With the rise of computing power, especially the development of graphics processing units (GPU's), deep learning has resurfaced on the forefront of AI innovation.[11] The necessity of having a way to analyze the nearly unfathomable amounts of data generated through technology every day has made the superior performance of deep learning one of the most popular applications of AI.

AI In Marketing Today

Artificial intelligence is getting smarter, faster, and cheaper, bringing the disruptive power of machine learning and cognitive computing to the marketing industry. Many tasks commonly performed by marketers are being augmented by AI.

Marketing

The topic of AI in marketing is wide-ranging. Marketers leverage artificial intelligence in one of two ways: first, by purchasing or licensing marketing technology software that has artificial intelligence capabilities; second, by using computer programming to implement artificial intelligence algorithms and techniques. AI in marketing utilizes [machine learning](#) and [neural networks](#) to derive analysis and pattern matching insights from large sets of customer and user data (e.g., purchases, web visits, clicks, product usage, etc.). [9]he insights are delivered to marketers via dashboards, reports and recommendations.[3]The relevancy of this innate human quality is paramount to marketers, and will increasingly be so in the AI Marketing Era. AI in marketing enables a host of capabilities that improve the ability of marketers' to first understand their customers in a comprehensive, individual level, then create and distribute content that is personalized and relevant to them at the right time and place.

Image Recognition and Computer Vision



Image recognition and computer vision offer marketers a wide range of potential uses. While image recognition technology has been on the market for years now in the form of facial recognition on Facebook and the image search function on Google, we only are now seeing the full extent

of marketing-based applications that the technology offers. [5]Image

recognition and computer vision can vastly improve how marketers understand, track, and interact with and understand consumers at scale in a way that works congruently to their lives.

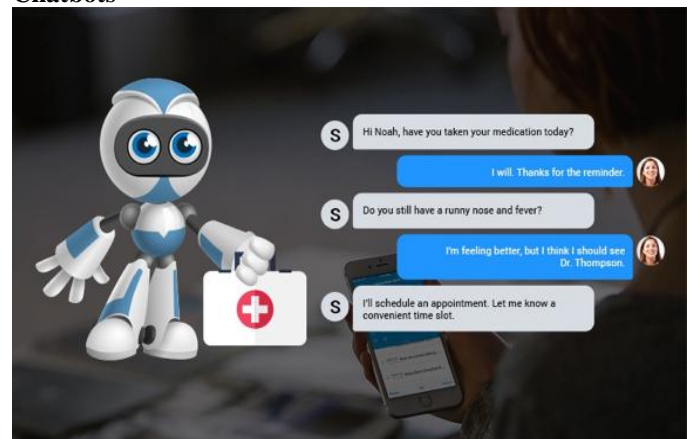
Social Media

With artificial intelligence, social networking companies are analyzing voluminous data to find out what's trending, different hashtags, and patterns. This analysis helps in understanding users' behavior.[5.1] With the help of various algorithms, artificial intelligence can keep an eye on the unstructured user comments to offer a personalized experience and to recognize crisis. The technology can also assist in providing content analyzing different activities as well as demographics. Most of the top social networking companies have already adopted AI to scale up their processes and take their business to the next level.[6]

Facial Recognition

Facial recognition is used to power a variety of everyday applications, such as photo tagging on Facebook, facial identification on smartphones, and Snapchat facial filters. The huge expectations surrounding facial recognition are due to the immense value it offers. [7] marketers specifically, facial recognition technology opens opportunities for seamless, omnichannel customer engagement and intelligent marketing efforts never before possible

Chatbots



Chatbots are text-based conversational applications that let a human user talk with a bot that replies automatically to them. Currently, there are two main forms of chatbots. The first are rule-based chatbots that can only respond to specific commands. If the user does not input the correct command, the chatbot is not able to understand the prompt. This form of AI has gained traction considerably in recent years.[8] Having an intelligent technology capable of communicating with customers in a human-like manner opens many opportunities for marketers. Chatbots can be utilized to engage customers as soon as they land on a company's website, influence decisions at strategic points throughout the customer journey, and add value and satisfaction to the overall experience.[8] Currently, the core use cases of chatbots in marketing are customer service, eCommerce, and personal assistants.

USAGE OF CHATBOTS

Chatbots are increasingly being used in marketing to simplify exchanges between marketers and their customers. They simultaneously offer businesses new ways of enhancing their styles of interactions, allowing them to cut the costs of their customer services. All of this, however, is only possible through the highly creative intervention of humans. It is after all programmers who configure, guide, and improve chatbots. Owing to this, many businesses are embracing chatbots to not only automate responses but also to improve their operational activities using digital marketing strategies. Firms are now coming up with strategies to ensure that their customers are getting responses each time they make a request for one. If tapped properly, chatbots help businesses in generating leads and converting them into sales. In fact, they can be used by digital marketers in several ways to improve their marketing strategies.

CONCLUSION

The era of AI Marketing is rapidly approaching and carries with it far-reaching implications. As AI quickly becomes more sophisticated and widely adopted in marketing, the ability for marketers to effectively implement and manage AI solutions will become an ever more necessary skill set. Likewise, an individual's understanding of their role in creating and distributing value in an AI-powered workplace is not only pivotal to their success, but to the success of their company. This ability can be realized through a mix of improved emotional capabilities within employees like empathy and creativity, and a constant focus on quality data-driven cultures within organizations. As AI automates repetitive tasks, marketers can increasingly align their efforts towards value-generating activities that improve the lives of consumers, allow for higher satisfaction, and empower creative thinking for societal benefit at-large.

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