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# Application of Machine Learning in Social Networks and Online Interactions

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## ABSTRACT

Social Media Are The Computerized Technologies That Organize The Sharing, Creation, A Bunch Of Data, Ideas, Professional Interests And Other Expression Patterns Through Foundational Communities And Websites. The increasing trend of online social networks in different domains, social network analysis has recently become the center of research. Online Social Networks have fetched the interest of researchers for its enormous amount of user generated content, including tweets, blog posts, and forum messages, is created. We explore social network environment and the impact of machine learning in the domain and the use of same to support classification, blogging, Sentiment Analysis and Online Interactions

**Keywords:** Social Media, Applications, Network, Blogging, Online Forums, Analytics

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## I. INTRODUCTION

The tools and platforms that enables users to interact and exchange information in different forms such as text, picture, video and etc. are called social media. There are a number of different types of social media for example blogs, discussion boards and networking platforms such as Facebook and Twitter. Twitter is one of the most popular social media services that enable users to publish and share a maximum of 140 characters text called tweets and use hashtags “#” to relate their tweets to a specific topic, person or a company. Several companies and business strategists consider social media as an important arena and they are constantly trying to find out various ways to increase their profitability using social media (Kaplan & Haenlein, 2020).

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The impact of machine learning can be devoted to explore different applications especially in social media where large number of users are using different applications. In order to make user friendly and safety measures, the machine learning principles are very handy. Based on which the study was present and much more applications are awaited in near future. People see fiction in scientific movies and how this becomes a reality, this is all possible with the use of artificial intelligence and machine learning.

- i. To increase the visual experience (Gujral, 2017).
- ii. It assists the social networking giants to market their products to be targeted users.
- iii. This protects the reputation and contains the data secure
- iv. It assists to automate the data

## 2. MACHINE LEARNING AND SOCIAL MEDIA

### Ways Machine Learning Enhance Social Media Marketing

Instagram is a global platform where businesses can showcase their products to over one billion total users, of which over 500 million are active on the app at least once a day. Facebook and Twitter also allow businesses to provide customer support and spread the word about upcoming events and sales to a huge audience. In fact, 63% of customers prefer [customer support on social media](#), compared to other avenues like phone or email. At the same time, artificial intelligence (AI) and machine learning are becoming more integrated in many aspects of social media. AI is far from replacing the human touch, but it is increasing both the quantity and quality of online interactions between businesses and their customers. Businesses can use machine learning in the following four ways to create effective social media marketing strategies.

#### Social media monitoring

Social media monitoring is one of the more traditional tools for businesses looking to manage their social media accounts. Some platforms like Twitter and Instagram have built-in analytics tools that can measure the success of past posts, including number of likes, comments, clicks on a link or views for a video. Third-party tools can provide similar social media insight and management services, teaching businesses about their audiences, including demographic information and ideal times for posting. Social media algorithms generally prioritize more recent posts over older posts, so with this data, businesses can strategically schedule their posts at, or a few minutes before, the peak times. In the future, businesses might be able to rely on [AI](#) for recommendations about which users to message directly, or which posts to comment on, that could likely lead to increased sales. These recommendations would partly be based on the information gathered through existing analytics tools for social media monitoring.

#### Social media analyzing

One of the more traditional tools for business looking to maintain their social media account. Few platforms such as Instagram and twitter have developed analytics tools that can measure the success of the past posts, also including counting of the likes, clicks on the link, comments, or views of the

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video. Some of the third party tools such as conoquare (for Facebook and Instagram) can also give the same social media management and insight services. These tools can also tell about the businesses a lot their audiences, also including demographic information and also about peak time when their followers are more active on the platform. Social media algorithms normally arrange most current posts across older posts, therefore with this data, businesses can be strategically programmed their post at or some few minutes before the peak times. In the future, businesses mostly depend on AI for the recommendations about that user to message directly, or which post is commented on, which could likely to guide to improved sales (Gujral, 2017). These recommendations would partially based on information collected by existing analytics tools for social media monitoring.

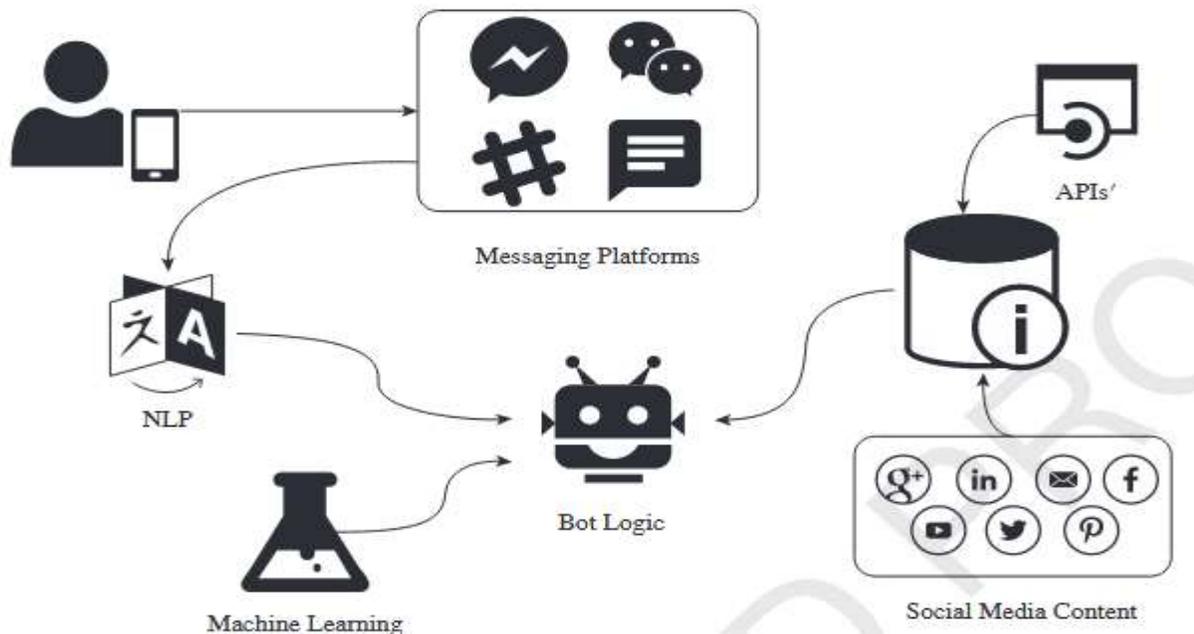
### **Image recognition for social media marketing**

Image recognition uses machine learning to train computers to recognize a brand logo or photos of certain products, without any accompanying text. This can be useful for businesses when their customers upload photos of a product without directly mentioning the brand or product name in a text. Potential customers might also upload a photo of your product with a caption saying “Where can I buy this?” If businesses notice when that happens, they can use it as an opportunity to send targeted promotions to that person, or simply comment on the post to provide an answer, leading to increased customer satisfaction. In addition, social media posts with images generally receive higher user engagement compared to posts that are purely text. Facebook users are 2.3 times more likely to like or comment on posts with images, and Twitter users are 1.5 times more likely to retweet messages with images. This is critical given that social media algorithms are usually designed so that posts with high engagement — measured by how many users interacted with a post such as by liking, commenting or sharing that post with other users — show up at the top of user feeds.

Recognition of the image utilizes machine learning for train computers to identify brand photos or logo of the fix products, without any following text. This can be useful for the businesses while their clients upload the pictures of the products without directly highlighting the brand or product name in the text. Possible clients might also upload a picture of their products with a caption and saying " where can I buy this product?" if the businesses can be noticed while this happens, they can utilize it as a chance to send the targeted product promotions to that persons, or easily comment on the post to say thanks for their buying, this could determining guide to improved client loyalty. Additionally, the client might feel inspired to post many photos of their products in the future, this leads to future brand promotions (Gujral, 2017). Businesses may be advantages from paying close attention while people post the photos of their products, because of the social media post with the images normally get more user involvement compared to the posts which are completely text. Users of Facebook are 2.3 times likely to be a comment or like on the posts with the images and twitter users are 1.5 times more likely to be retweet a tweet with the photos. This is essential for the product marketing because of the social media algorithms are generally designed so these posts with the high involvement, measured through how many users are interacted with the post like by commenting, liking or sharing the post which posts with the other users, also show up the top of the user feeds (Dhaoui et al., 2017).

### Chatbots for social media marketing:

Chatbots are an application of AI that mimic real conversations. They can be embedded in websites such as online stores, or through a third-party messaging platform like Facebook messenger, Twitter or Instagram's direct messaging. For businesses with a generally young customer base, chatbots are more likely to increase customer satisfaction. More than 60% of Millennials have used chatbots, and 70% of them reported positive experiences. The use of chatbots is not limited to situations when a customer has a specific question or complaint.



**Figure 1: Chatbot schematic diagram**

Estee Lauder deployed a chatbot embedded in Facebook messenger that uses facial recognition to pick out the right shade of foundation for its customers, and Airbnb has used Amazon Alexa to welcome guests and introduce them to local attractions and restaurants. Artificial intelligence can be a powerful tool for businesses looking to get ahead in social media marketing. Receiving feedback on how customers feel about different products, and learning how customers spend their time on social media platforms are valuable for all companies regardless of industry. Using these applications to better meet customer needs and build stronger relationships is a winning strategy, and one we can help support — get in touch with us today to get the most out of your social media channels.

The chatbot is an AI application that mimics actual conversation. Chatbots can be set up on websites like through a third party messaging platform or online stores like twitter, Facebook messenger, and Instagram's direct messaging. Chatbots permits businesses to self-moving client services without needing human interaction, but the client significantly asks to speak or talking with the human representative. Normally young customer base, for business chatbots are much likely to improve client satisfaction. Approximate 60 percent of the millennials have utilized chatbots and 70 percent of them found positive experiences (Kalyanam, 2017). The utilization of the chatbots is not controlled to the situations while the client has been a significant complaint or question.

Estee lauder utilizes chatbot placed in the Facebook messenger which utilizes the facial recognition to get the right shade of the base for their clients, and Airbnb has been utilized Amazon Alexa to welcome the guests and address them to local restaurants and attractions. AI can be a strong tool for doing business looking to achieve in social marketing. Getting feedback on how clients feel about the various products and learning how the clients spend their time on the social media platform is valuable on behalf of the industry. Businesses can utilize the applications to better understanding and meet with the client's requirements, and in time develop stronger relationships with their clients (Amadei, 2017).

### **3. SOCIAL MEDIA AT UNIVERSITIES**

Students use social media platforms and internet on a daily basis, often times more frequently than other mass media such as newspaper or television. Therefore, they are experienced in how to use social media (Gapski & Gräßer, 2017). Based on this fact and the increasingly usage of social media, it seems reasonable to use social media in university environments for the purpose of engaging the social media tools in the teaching process, as well as for the purpose of analyzing opinions regarding university topics like teaching and learning. On university level, microblogs are tools for simultaneous communication, knowledge management and publication service. In formal and informal teaching and learning contexts, microblogs can support individual and cooperative communication, knowledge management, reflection and feedback processes.

Teachers use microblogs to encourage motivation and participation of students. This is justified by two features (Hisserich & Primsch, 2020): First, it raises interactivity of students and creates the opportunity to implement social and team building aspects even in large classes. Second, it makes use of the media usage of smartphones, tablets and notebooks of today's students in learning contexts (Buchem et al., 2018). The fields of application of microblogs in teaching scenarios can be divided into three parts: collaboration, feedback giving/discussion and public scientific communication. By adding the ability to share information and knowledge via social media, mentioning Twitter specifically, collaborative work and learning is enabled with an open feedback giving space.

Furthermore, general and personal questions as well as lecture or seminar contents can be reflected. Twitter can be utilized to collect questions and feedback of students and discuss them. One of the interesting use cases is the “Twitter wall”, where the concept is realized by projecting Twitter’s posts on a big screen during the class time. In addition to discussing the most relevant questions at the end of the lecture, other questions and feedback can also be answered after the lecture via Twitter. Besides the well-known applications of microblogs in different teaching and learning scenarios, semantic technologies are often put to use in order to analyze and evaluate automatically opinions made in social media, e.g. Twitter or Facebook. Brauer and Bernroider, (2015) conduct an international study analyzing the usage of Facebook within higher education institutes in Germany, Austria and Switzerland. In this case, the social media strategy that is related to Facebook of selected institution is analyzed. Another field of social media analytics in universities is the analysis of students and teachers opinions which are made in e.g. Twitter or Facebook.

#### **4. APPLICATION OF MACHINE LEARNING IN SOCIAL MEDIA:**

##### **Handling The Automating Data**

Social Media Is In Use By Millions Of People Every Day And Collecting, Sharing, And Also Maintaining The Information From Several Different Sources Is Not An Easy Task. So, Machine Learning Helps Automate Data, Organizing It Without The Need For Human Intervention.

**Manage Security-** Machine learning helps however, machines to detect the junk and spam content and backlinks on social media which are a threat to the data and the whole organization. Helping the brand reach the target audience- with the help of machine learning technology in social media allows machines to decide what data or which advertisements are to be shown to which audience. Also, “increase in data visibility, increase traffic on social media”. They collect the data from users and analyze it, for their preferences and according to the show advertisement.

**Enhance Media Quality-** Media is a very significant part of social media. With the use of machine learning works in social media the quality of images, audios, and videos can be enhanced automatically. Twitter and facebook use machine learning for just this purpose, to enhance the visual experience of users.

**Chatbots-** Chatbots are an application of ai that works with machine learning algorithms, for real conversations. They can be inserted in websites such as online stores or messaging platforms. Chatbots allow businesses to automate customer service without requiring human intervention.

**Image Recognition For Social Media-** Image recognition uses machine learning to develop the computers to recognize photos or a brand logo of certain products, without any accompanying text. This can be useful for various purposes like businesses when their customers upload photos of a product without directly referring to the brand or product name in a text. Social media posts with photos generally collect higher user attention pertained to posts that are purely text.

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**Social Media Monitoring-** Social media monitoring is one of the more conventional methods for businesses looking to organize their social media accounts. Some outlets like twitter and instagram have built-in analytics tools that can compute the success of past posts, involving the number of likes, comments, clicks on a link, or views for a video. Social media algorithms commonly prioritize more current posts over former posts, so with this data, businesses can strategically organize their posts at or a few minutes before the peak times.

**Sentiment Analysis For Social Media-** Sentiment Analysis Is Basically To Collect Feedback On A New Product And Design. Sentiment Analysis To Find Out How People Feel About Their Opponents Or Trending Industry Topics. Machine-Learning Can Create Agents That Learn To Recognize The Sentiments Underlying New Messages.

**Big Data** - The amount of data generated by social networks and social media is unimaginable. It covers all four significant features of big data, the so-called 4V's. The 4V's are volume, velocity, variety, and veracity, and when present in generated social media data, the analysis on the data becomes complex. Leaving the complex data as it is not a wise decision for the technology giants. These social media organizations have started analyzing this generated data to give better prospects to their users. The users using these features are happy and excited to see applications built on their data. The application users can personalize it and share the personalized content with their friends on social media. To leverage the content generated on social media, branding and advertising departments of the top companies create marketing plans and budgets accordingly. These companies also need to understand the outcome of their advertisements, the preference of their customers, and even the negative reviews. Since the amount of data is enormous, it is impossible to do the analysis manually. Information from the historical transactions and social media data is not enough for the top officials to decide on their future goals. The organizations have to stay ahead of the competitors. Machine learning models come to the rescue to help top management make decisions

## 5. CONCLUDING REMARKS

Machine Learning technology in social media allows machines to decide which advertisements are to be shown to which audience. They collect data from users, analyze it, find out their preferences and accordingly show advertisements which hold their interest. Because AI learns from data, it can use data from social media audiences to accelerate revenue in a number of ways, such as: Learn which headlines, words, and images in posts lead to the most engagement. Discover new audiences and trends based on sentiment analysis.

Managing social media platforms (flooded with innumerable users) is not a child's play; it requires a lot of things to look upon. 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.

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 the 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.

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