1). MACHINE LEARNING

Machine learning is a subset of artificial intelligence that involves the development of computer programs that can learn from data and make predictions or decisions without being explicitly programmed. It has numerous real-life applications in different fields such as:

1. Image and speech recognition

2. Medical diagnosis and analysis

3. Fraud detection and prevention

4. Customer service automation and chatbots

5. Credit scoring and loan risk analysis

6. Recommendation systems for e-commerce and social media

7. Personalized marketing and advertising

8. Autonomous vehicles and robotics

9. Language translation

10. Predictive maintenance in manufacturing and industrial processes.

Menu

Real-World Examples of Machine Learning (ML)

When the average person thinks about machine learning, it may feel overwhelming, complicated, and perhaps intangible, conjuring up images of futuristic robots taking over the world. As more organizations and people rely on machine learning models to manage growing volumes of data, instances of machine learning are occurring in front of and around us daily—whether we notice or not. What's exciting to see is how it's improving our quality of life, supporting quicker and more effective execution of some business operations and industries, and uncovering patterns that humans are likely to miss. Here are examples of machine learning at work in our daily life that provide value in many ways—some large and some small.

1. Facial recognition

Facial recognition is one of the more obvious applications of machine learning. People previously

received name suggestions for their mobile photos and Facebook tagging, but now someone is immediately tagged and verified by comparing and analyzing patterns through facial contours. And facial recognition paired with deep learning has become highly useful in healthcare to help detect genetic diseases or track a patient's use of medication more accurately. It's also used to combat important social issues such as child sex trafficking or sexual exploitation of children. The list of applications and industries influenced by it is steadily on the rise.

2. Product recommendations

Do you wonder how Amazon or other retailers frequently know what you might like to purchase? Or, have they gotten it wildly wrong and you wonder how they came up with the recommendation? Thank machine learning. Targeted marketing with retail uses machine learning to group customers based on buying habits or demographic similarities, and by extrapolating what one person may want from someone else's purchases. While some suggested purchase pairings are obvious, machine learning can get eerily accurate by finding hidden relationships in data and predicting what you want before you know you want it. If the data is incomplete, sometimes you may end up with an offbase recommendation—but don't worry, because not buying it is another data point to learn from.

3. Email automation and spam filtering

While your inbox seems relatively boring, machine learning influences its function behind the scenes. Email automation is a direct result of successful machine learning, and one function that goes most unnoticed is spam filtering. Successful spam filtering adapts and finds patterns in email content that is undesirable. This includes data from email domains, a sender's physical location message text and structure, and IP addresses. It also requires help from users as they mark emails when they're mistakenly filed. With each marked email, a new data reference is added that helps with future accuracy.

Bring analytics to life with AI and personalized insights.

Graphic of visualizations

4. Financial accuracy

Machine learning has created a boon for the financial industry as most systems go digital.

Abundant financial transactions that can't be monitored by human eyes are easily analyzed thanks to machine learning, which helps find fraudulent transactions. One of the newest banking features is the ability to deposit a check straight from your phone by using handwriting and image recognition to "read" checks and convert them to digital text. Credit scores and lending decisions are also powered by machine learning as it both influences a score and analyzes financial risk. Additionally, combining data analytics with artificial intelligence, machine learning, and natural language processing is changing the customer experience in banking.

5. Social media optimization

Platforms from Facebook to Instagram and Twitter are using big data and artificial intelligence to enhance their functionality and strengthen the user experience. Machine learning has become helpful in fighting inappropriate content and cyberbullying, which pose a risk to platforms in losing users and weakening brand loyalty. Processing data through deep neural networks also allows social platforms to learn their users' preferences as they offer content suggestions and target advertising.

6. Healthcare advancement

Every day, we're getting closer to a full transition to electronic medical records. That means healthcare information for clinicians can be enhanced with analytics and machine learning to gain insights that support better planning and patient care, improved diagnoses, and lower treatment costs. Healthcare brands such as Pfizer and Providence have begun to benefit from analytics enhanced by human and artificial intelligence. There are some processes that are better suited to leverage machine learning; machine learning integration with radiology, cardiology, and pathology, for example, is leading to earlier detection of abnormalities or heightened attention on concerning areas. In the long run, machine learning will also benefit family practitioners or internists when treating patients bedside because data trends will predict health risks like heart disease. As an example, wearables generate mass amounts of data on the wearer's health and many use AI and machine learning to alert them or their doctors of issues to support preventative measures and respond to emergencies.

7. Mobile voice to text and predictive text

Machines are also capable of learning language in other formats. Like Siri and Cortana, voice-to-text applications learn words and language then transcribe audio into writing. Predictive text also deals with language. Simple, supervised learning trains the process to recognize and predict what common, contextual words or phrases will be used based on what's written. Unsupervised learning goes further, adjusting predictions based on data. You may start noticing that predictive text will

recommend personalized words. For instance, if you have a hobby with unique terminology that falls outside of a dictionary, predictive text will learn and suggest them instead of standard words. It's working when autocorrect starts trying to predict them in normal conversation.

8. Predictive analytics

Predictive analytics is an area of advanced analytics that uses data to make predictions about the future. Techniques such as data mining, statistics, and modeling employ machine learning and artificial intelligence to analyze current and historical data for any patterns or anomalies that can help identify risks and opportunities, minimize the chance for human errors, and increase speed and thoroughness of analysis. With closer investigation of what happened and what could happen using data, people and organizations are becoming more proactive and forward looking. Florida International University is one example. By integrating predictive models with data analysis from Tableau, they're communicating critical insights about academic performance before students are at risk and supporting their individual needs to help them successfully complete all courses and graduate.

Believe it or not, the list of machine learning applications will grow so it's almost too long to count. However, the benefits and improvements to our lives—and for data analysts sitting in global organizations—that come from enhancing human knowledge with machine power will be worth it, even though it feels daunting. Embrace the benefits, practicality, and future possibilities. Learn more ways that AI and machine learning are being used in augmented analytics and to augment human decision-making through smart analytics—whether for mundane or complex task

In summary, machine learning has become an integral part of many modern technologies that impact our everyday lives.

2.) GENERIC ALGORITHM

Genetic algorithms are a class of algorithms used in machine learning and optimization problems that are inspired by the process of natural selection. They are used to find solutions that are close to the global optimum by mimicking the process of evolution.

There are several real-life applications of genetic algorithms, including:

1. Financial trading: Genetic algorithms can be used to analyze financial data and find profitable trading strategies.

2. Engineering design and optimization: Genetic algorithms can be used to optimize the design of complex engineering systems, such as aircraft engines and skyscrapers.

3. Image and signal processing: Genetic algorithms can be used to process images and signals, such as in facial recognition software or speech recognition systems.

4. Robotics: Genetic algorithms can be used to optimize the behavior and control of robots, such as in autonomous driving systems.

5. Game development: Genetic algorithms can be used to generate more realistic and challenging opponents in video games.

Overall, genetic algorithms have numerous real-life applications across a wide range of industries, and they are particularly useful when dealing with complex optimization problems.

3). LOCOMOTION

Locomotion is the ability of an organism to move from one place to another. This ability is essential for survival and can be observed in a wide range of organisms, including animals, plants, and even some bacteria.

Real-life applications of locomotion include:

1. Transportation: One of the most common applications of locomotion is transportation. Humans and animals use locomotion to move from one place to another. It has revolutionized the way people move and transport goods.

2. Agriculture: The ability to move is also critical for farming and agriculture. Farmers use locomotion to plow fields, plant seeds, and harvest crops. Animals such as horses and oxen are used to pull carts and farming equipment, which is a form of locomotion.

3. Sports and Recreation: Locomotion is also a fundamental aspect of sports and recreation. Activities such as running, cycling, swimming, and skating all require locomotion. These activities not only provide exercise and physical fitness but also bring enjoyment and fun to people's lives.

4. Medical Applications: Locomotion is also used in medical applications such as rehabilitation and physical therapy. Patients are often required to perform exercises that involve locomotion to help them regain mobility and strength.

5. Robotics: Advances in robotics have allowed machines to replicate the movements of animals, such as walking and crawling. This technology has various applications, including search and rescue, exploration, and industrial automation.

Overall, locomotion plays a crucial role in various aspects of our daily lives, and its applications are widespread and diverse.