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ON

Incorporation of AI, ML, Analytics & Alternate data to increase credit approvals. ...

WHAT IS ARTIFICIAL INTELLIGENCE?

Artificial intelligence is the development of a computer system capable of performing tasks that would require human intelligence. "Artificial intelligence" is a general term that refers to any type of computer software that engages in human-like activities, including learning, planning, and problem solving. Calling specific apps "artificial intelligence" is like calling a car a "vehicle" - that's technically correct, but it doesn't cover any of the details. To understand what type of artificial intelligence is prevalent in business, we need to dig deeper.
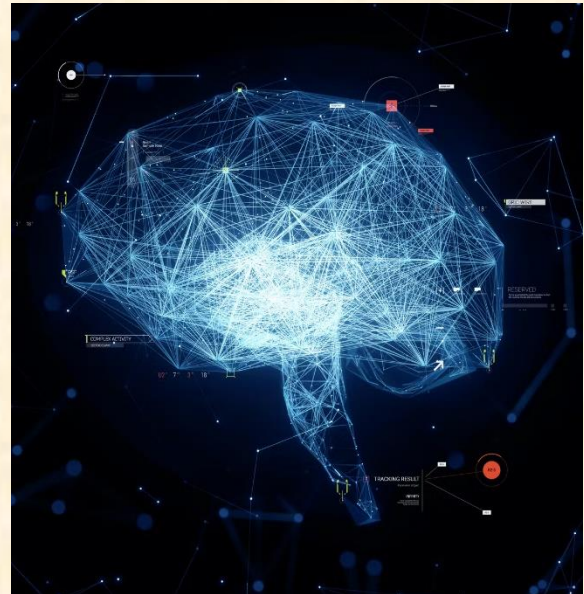
Also, it has caught the attention of IT companies around the world and is considered the next big technological revolution after the growth of mobile and cloud platforms. It has even been dubbed the "4th Industrial Revolution" by some. Researchers have developed a package that uses Darwinian evolutionary concepts, such as "survival of the fittest," to create artificial intelligence algorithms that improve from generation to generation without requiring human intervention. The PC was able to recreate decades of AI analysis in days, and its creators believe that in the indefinite future it may notice new AI techniques.

Examples

1.Face Recognition.

2.Translation between the languages

3.Speech recognition

4.Alexa, Siri, Echo Dot, Cortana.

MACHINE LEARNING

Machine learning is one of the most commonly developed types of artificial intelligence for commercial purposes today. Machine learning is mainly used to quickly process large amounts of data. These types of artificial intelligence are algorithms that seem to "learn" over time. If you feed a machine learning algorithm more data, its modeling should improve. Machine learning is useful

for inserting large amounts of data, increasingly acquired from connected devices and the Internet of Things, into a digestible context for humans. For example, if you run a manufacturing plant, your machines will likely be connected to the network. Connected devices send a constant stream of data about features, production and more to a central location.

Unfortunately, that's too much data for a human. to sift; and even if they could, they would probably lose most models. Machine learning can quickly analyze data as it arrives, identifying patterns and anomalies. get it and let decision makers know it's time to send in a preventative maintenance team. But machine learning is also a relatively broad category. The development of artificial neural networks - an interconnected network of artificial intelligence "nodes" - gave rise to what is known as deep learning.
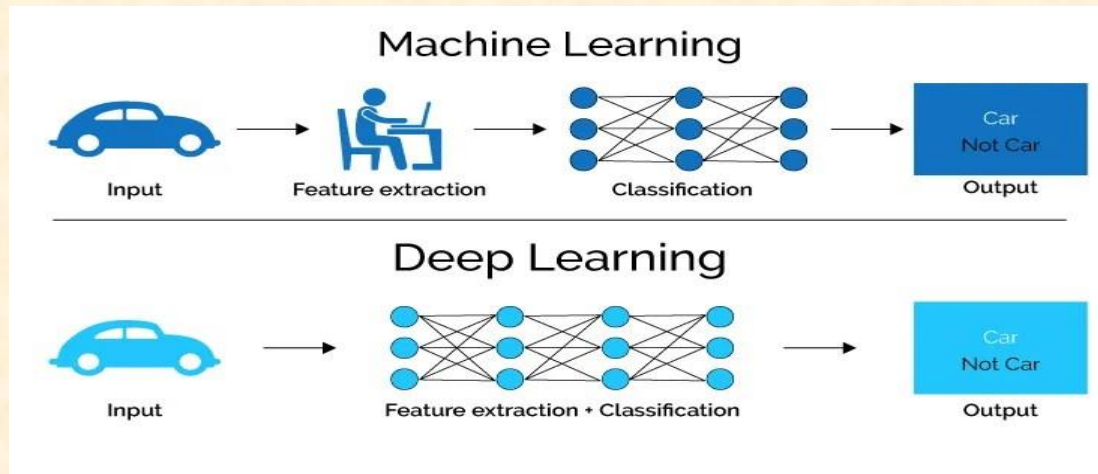
DEEP LEARNING

Deep learning is an even more specific version of machine learning that relies on neural networks to engage in what is known as nonlinear reasoning. Deep learning is essential to perform more advanced functions, such as fraud detection. It can do this by analyzing a wide range of factors at the same time.

For example, for self-driving cars to work, several factors must be identified, analyzed and addressed simultaneously. Deep learning algorithms are used to help self-driving cars contextualize information gathered by their sensors, such as the distance to other objects, the speed at which they are moving, and a prediction of their position in 510 seconds. All of this information is calculated at once to help an autonomous car make decisions like when to change lanes.

Deep learning holds great promise in the business world and should be used more often. Older machine learning algorithms tend to stabilize in their capabilities once a certain amount of data is acquired, but deep learning models continue to improve their performance as more data is received. This makes deep learning models much more scalable and detailed; one could also say that deep learning models are more independent.

WHERE WE ARE TODAY

Today's AI systems are fundamentally different from early expert systems and legacy commercial solutions in 3 ways: we use them differently; The focus on intelligence has shifted from automation to augmentation, and AI systems are learning from use and adapting to changes within the business. How we use them: Traditional business solutions are often fragmented. One set of systems tells you how your business is doing now (traditional business intelligence), another helps you decide how to run your business, and yet another lets you record what you've probably done to run your business (business planning). enterprise resources). Users must follow tedious and disconnected paths from descriptive and diagnostic analysis to predictive analysis and improvement using digital twin models. Then, once the decision is made, they have to turn around and save the optimization in their ERP.

In contrast, after using AI, we tend to start directly with recommendations and can explore predictive, diagnostic, and descriptive information as explanations. The AI offers step-by-step instructions for requesting an action, even after being able to create completely different selections from recommendations. A shift in focus: Traditional expert systems were too focused on automation. Today's AI systems will facilitate u. He knows how to navigate and orchestrate business processes.

AI IN THE PRESENT

Artificial intelligence is being utilized for so many things and has such a lot promise that it's difficult to imagine our future while not it, associated with business. Artificial intelligence technologies are boosting productivity like never seen before, from workflow management solutions to trend forecasts and even the way companies buy advertisements. Artificial Intelligence can gather and organize vast volumes of data so as to draw inferences and estimates that are outside of the human ability to understand manually. It also improves organizational efficiency whereas lowering the chance of a mistake, and it identifies unusual patterns, like spam and frauds, instantaneously to alert organizations about suspicious behavior, among other things. AI has full-

grown in importance and class to the purpose that a Japanese investment firm became the first to propose associate AI member for its ability to forecast market trends faster than humans.

These early uses are still fairly restricted, however large advances in deep learning (a set of machine learning) are getting down to impact AI in ways in which can shortly facilitate society and business tackle a wider set of additional general issues. Such advances also will build it attainable to automatize additional complicated physical tasks that need ability and lightness.

At Sales force, we tend to believe AI has tremendous potential for up the manner organizations operate (and you'll be able to find out how AI is made into our entire Sale force client 360 here). This next wave of AI can modify corporations to incessantly adapt processes supported past expertise — launching large enhancements in client targeting, as an example, as a result of deep learning algorithms are going to be able to spot patterns in behavior that are additional seemingly to guide to sales.

TYPES OF ARTIFICIAL INTELLIGENCE

- Weak AI
- Strong AI
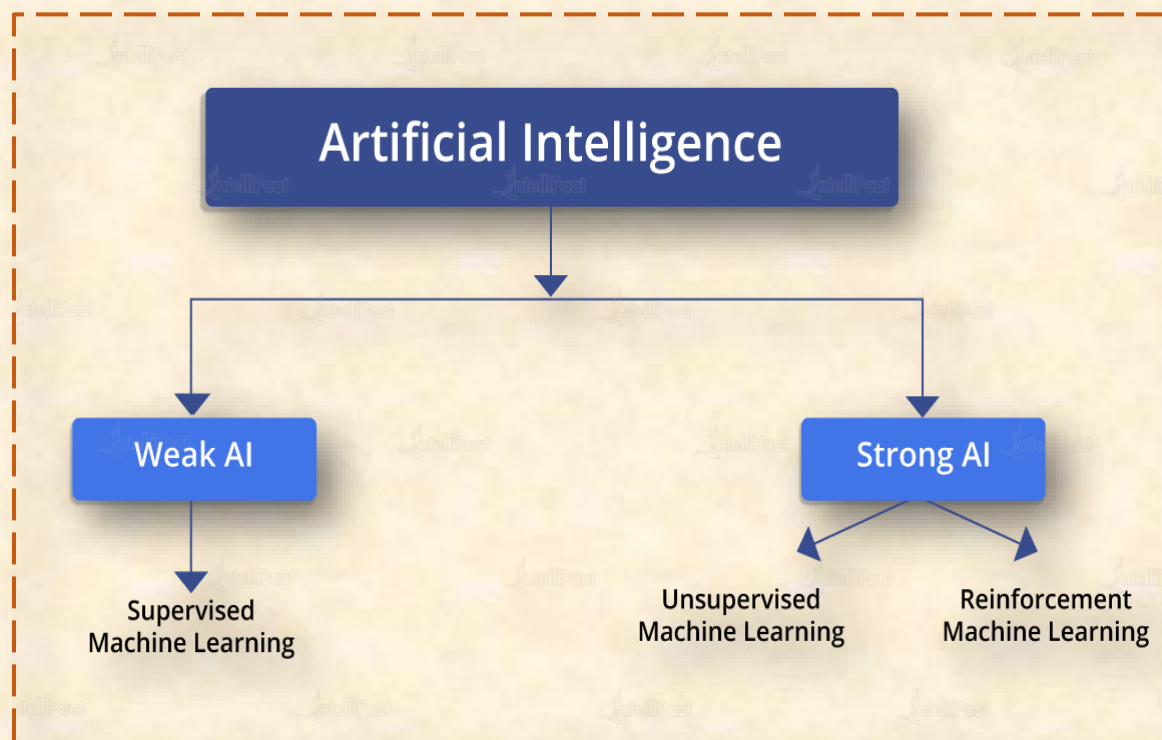
Weak AI: Machines with weak artificial intelligence are made to respond to specific situations but cannot assume for themselves.

Strong AI: A machine with strong AI is able to think and acts a bit like a human. it is able to learn from experiences. Since there are no real-life examples of strong AI, yet the best representation would be hoe Hollywood portrays robots.

In distinction, after we use AI, we have a tendency to begin directly with recommendations and might explore predictive, diagnostic and descriptive insights as explanations. AI offers stepwise pointers to require actions, even after we could create selections that are completely different from the recommendations. A shift in emphasis: traditional expert systems were overly focused on automation.

Today's AI systems will facilitate U.S.A. navigate and orchestrate business processes. In my opinion, it's higher to consider AI as increased intelligence instead of AI. Today, we see AI as something we are able to train and adapt to our wants. Learning and adaptation: ancient business systems are static and tend to go stale over time. they have enhancements and revisions to include feedback or changes within the business. AI systems, in contrast, are dynamic. They learn and adapt to dynamical business wants. The additional you utilize them, the smarter and more practical they become over time.

Major Artificial Intelligence areas are Expert Systems, Natural Language, Processing, Speech Understanding, Robotics and Sensitive Systems, Computer Vision and Scene, Recognition, Intelligent Computer- Backed Instruction, Neural Computing. From these Expert System is a rapidly growing technology which is having a huge impact on various fields of life. The various techniques applied in artificial intelligence are Neural Network, Hybrid Logic, Evolutionary Computing, and Hybrid Artificial Intelligence.

INTRODUCTION TO MACHINE LEARNING (ML)

The phrase Machine Learning was first coined by Arthur Samuel in the year 1952, he was an American pioneer which belongs to the field of computer gaming and artificial intelligence. He also said that "it gives computers the ability to learn without being explicitly programmed"

It is a very important tool which is used for the goal of leveraging technologies around artificial intelligence. Machine learning is often referred to as Artificial Intelligence due to its learning ability and its ability of decision makings.

During late 1970s it was referred to be a part of AI's evolution, later it had branched off to produce

its own. Machine Learning (ML) has become a very responsive tool with regards to cloud computing and electronic commerce and has been used in a variety of cutting edges technologies. Machine learning is one of the latest buzzwords which has been floating around the world because it is treated as one of the most interesting subfields with regards to computer science.

Machine learning as the Game of Checkers – Arthur Samuel in the late 1950s had developed a computer program for playing checkers. Samuel had initiated something called alpha-beta pruning as the program had a very short memory available. The program has also chosen its next move which was minimax algorithm.

Samuel has also tried his best to bring in several mechanisms which has allowed his program to be better and best. Machine Learning as of now or at the present has a responsibility for some of the most significant advancements in the technological background. This is fully made up to use in the areas like the new industry of self-driving vehicles and also for exploring the galaxy as it helps in identifying exoplanets.
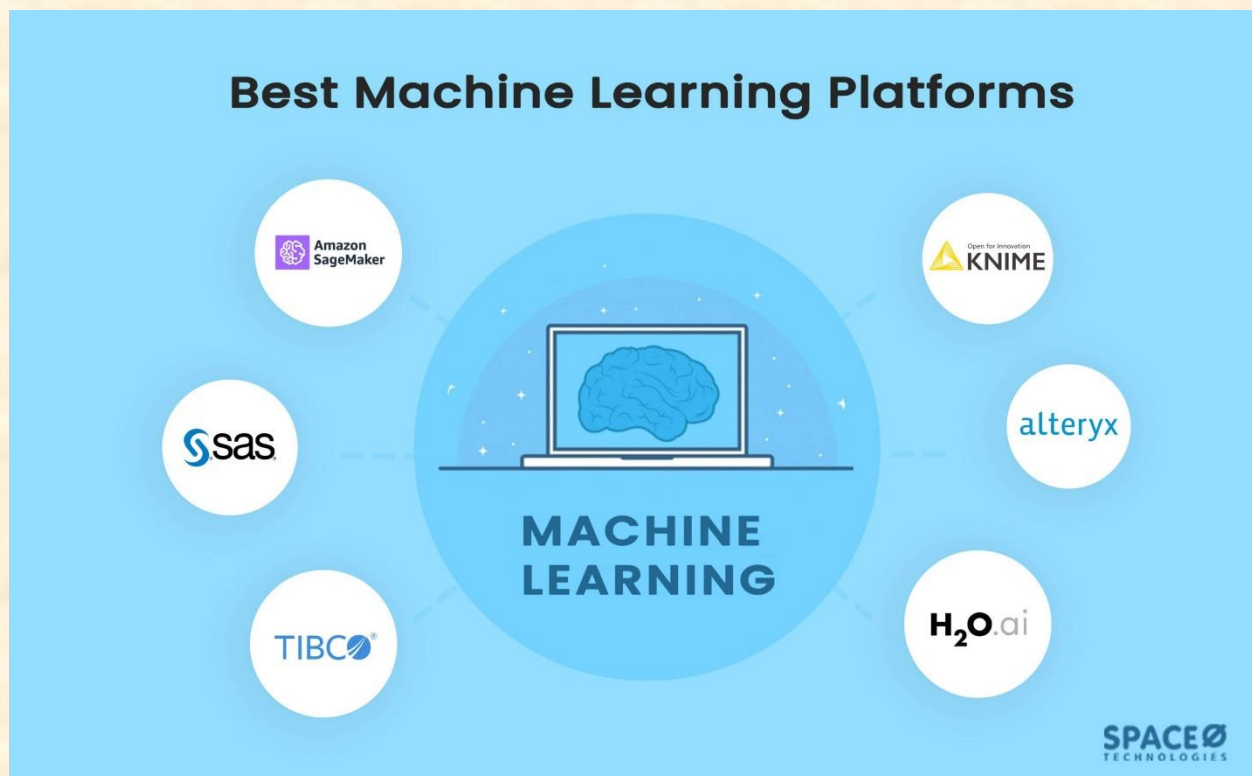
Some of the common ways the world of businesses is at present using the Machine Learning techniques which included the following:

1. Sales data analysis
2. Personalization of real-time mobile

3. Detection of frauds
4. Dynamic pricing strategies
5. Natural language processing
6. Product recommendations

Google is now currently making experiments on Machine Learning (ML) with the help of an approach known as instruction fine-tuning, their goal is to train on the Machine Learning (ML) model which helps in resolving natural language processing issued in a generalized way, this particular problem helps to resolve a greater range of problems instead of focusing only on one kind of problem.

DIFFERENCE BETWEEN AI AND ML

Artificial Intelligence (AI) and Machine Learning (ML) are different phrases which are popularly used and often hyped terms these days. Even though both the Artificial

Intelligence (AI) and Machine Learning (ML) are both based on the statistics and mathematics they do not be the same they are two different terms. The following says the same:

Artificial Intelligence (AI) involves in solving the tasks that will require the human intelligence whereas, Machine Learning (ML) is known as the subset of AI which involves in solving the specific tasks by referring to the data and make certain predictions.

All Machine Learning is Artificial Intelligence whereas all Artificial Intelligence isn't Machine Learning.

The main objective of Artificial Intelligence is to make a smart computer system which is similar to human thinking to solve the complex problems whereas, the main goal of ML is to allow machines to allow machine to learn from the data so that they can provide an accurate result.

METHODS OF MACHINE LEARNING

1. Supervised machine learning algorithms

Can apply what has been learned in the past to new data using labeled example to predict future events. Starting from the analysis of a known training dataset, the learning algorithm produces an inferred function to make predictions about the output values. The system is able to provide targets for any new input after sufficient training. The learning algorithm can also compare its output with the correct, intended output and find errors in order to modify the model accordingly.

In contrast, unsupervised machine learning algorithm are used when the information used to train

is neither classified nor labeled. Unsupervised learning studies how systems can influence a function to describe a hidden structure from unlabeled data. The system doesn't figure out the right output, but it explores the data and can draw inferences from datasets to describe hidden structure from unlabeled data.

2. Semi-supervised machine learning algorithms

Fall somewhere in between supervised and unsupervised learning. Since they use both labeled and unlabeled data for training . Typically, a small amount of labeled data and a large amount of unlabeled data. The systems that use this method are able to considerably improve learning accuracy.

3. Reinforcement machine learning algorithm

Is a leaning method that interacts with its environment by producing actions and discovers errors or rewards? Trial and error search and delayed reward are the most relevant characteristics of reinforcement learning. This method allows machines and software agents to automatically determine the ideal behavior within a specific context in order to maximize its performance. Simple recovered feedback is required for the agent to learn what action is best, this is known as the reinforcement signal.

FUTURE SCOPE OF MACHINE LEARNING

The scope of machine learning is not limited to the investment sector. Rather, it is expanding across all fields such as banking and finance, information technology, media and entertainment, gaming, and the automotive industry. As the Machine Learning scope is very high, there are some areas where researchers are working toward revolutionizing the world for the future.

Automotive industry

The automotive industry is one of the areas where Machine Learning is expelling by changing the definition of 'safe driving'. There are a few major companies such as Google, Tesla, Mercedes Benz, Nissan, etc. That have invested hugely in machine learning to come up with novel innovations. However, Tesla's self-driving cars are built using machine learning, IoT sensors, high-definition cameras, voice recognition systems

Robotics

Robotics is one of the fields that always gain the interest of researchers as well as the common. In 1954, George Devol invented the first robot that was programmable. After that, in the 21st century, Hanson Robotics created the first AL-robot, Sophia. These inventions were possible with the help of machine learning and artificial Intelligence. Researchers all over the world are entire working on creating robots that mimic the human being.

Quantum Computing

We are still at an infant state in the field of machine learning. There are a lot of advancements to achieve in this field. One of them that will take Machine Learning to the next level is Quantum Computing. It is a type of computing that uses the mechanical phenomena of quantum such as entanglement and super portion, we can create systems that can exhibit multiple states at the same time.

On the other hand, entanglement is the phenomenon where two different states can be referenced to each other. It helps in describing the correlation between the properties of a quantum system. There quantum systems are built using advanced quantum algorithm that process data to high speed. Fast processing enhanced the processing power of Machine learning models. Thus, the future scope of machine learning will accelerate the processing power of the automation system used as various technologies.

Computer Vision

As the name suggests, computer vision gives a vision to a computer or a machine. Here comes into our minds what the head of AI at Google, Jeff Dean, has once said. 'The progress we've made

from 26%. Error in 2011 to 3% error in 2016 is highly impactful. The way, I like to think is, computers have now evolved eyes that work' Giving the ability to a machine to recognize and analyze images, videos, graphics, etc.

AI AND BUSINESS TODAY

Rather than serving as a replacement for human intelligence and ingenuity, artificial intelligence is generally seen as a supporting tool. Although AI currently has a difficult time completing common sense tasks in the real world, it is adept at processing and analyzing troves of data much faster than a human brain could.

Artificial intelligence software can then return with synthesized courses of action and present them to the human user. In this way, we can use AI to help game out possible consequences of each action and streamline the decision-making process.

"Artificial intelligence is kind of the second coming of software," said Amir Husain, founder and CEO of machine-learning company Spark Cognition. "It's a form of software that makes decisions on its own, that's able to act even in situations not foreseen by the programmers. Artificial intelligence has a wider latitude of decision- making ability as opposed to traditional software."

COMMON USES OF AI

Some of the most standard uses of AI are machine learning, cybersecurity, customer relationship management, internet searches and personal assistants.

Machine learning

Machine learning is used often in systems that capture vast amounts of data. For example, smart energy management systems collect data from sensors affixed to various assets. The troves of data are then contextualized by machine-learning algorithms and delivered to your company's decision-makers to better understand energy usage and maintenance demands.

Cybersecurity

Artificial intelligence is even an indispensable ally when it comes to looking for holes in computer network defenses, Husain said. Believe it or not, AI systems can recognize a cyberattack, as well as other cyberthreats, by monitoring patterns from data input.

Once it detects a threat, it can backtrack through your data to find the source and help to prevent a future threat. That extra set of eyes – one that is as diligent and continuous as AI – will serve as a great benefit in preserving your infrastructure.

Customer relationship management

Artificial intelligence is also changing customer relationship management (CRM) systems. Software programs like Salesforce and Zoho require heavy human intervention to remain current and accurate. But when you apply AI to these platforms, a normal CRM system transforms into a self-updating, auto-correcting system that stays on top of your relationship management for you. A great example of how AI can help with customer relationships is demonstrated in the financial sector.

Internet and data research

Artificial intelligence uses a vast amount of data to identify patterns in people's search behaviors and provide them with more relevant information regarding their circumstances. As people use their devices more, and as the AI technology becomes even more advanced, users will have a more customizable experience. This means the world for your small businesses, because you will have an easier time targeting a very specific audience.

Digital

Artificial intelligence isn't just available to create a more customized experience for your customers. It can also transform the way your company operates from the inside. AI bots can be used as personal assistants to help manage your emails, maintain your calendar and even provide recommendations for streamlining processes. .

FUTURE SCOPE OF ARTIFICIAL INTELLIGENCE IN INDIA

The immense potential that artificial intelligence holds can be understood by the various other technologies that are covered under the umbrella of AI. some of the examples of such technologies include machine learning, pattern recognition, big data, and many others.
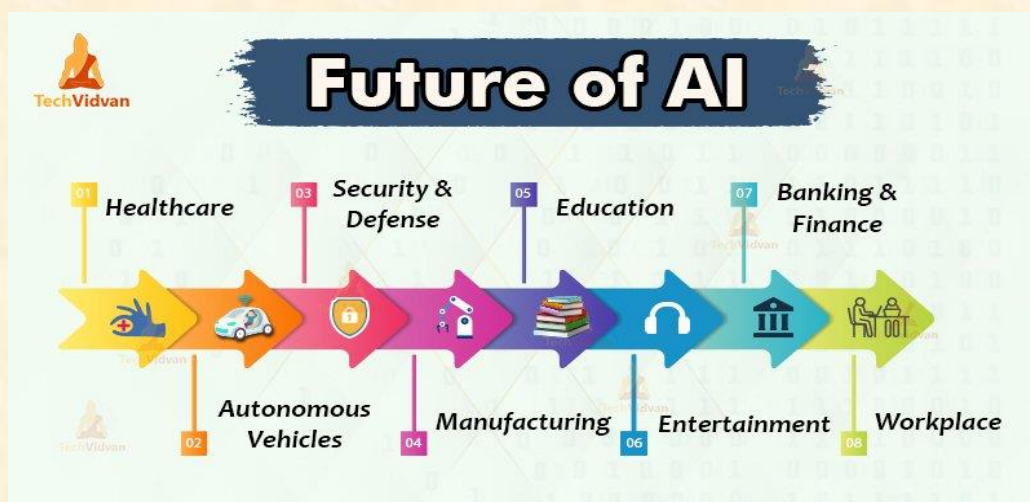
Artificial intelligence job opportunities:

- Banking
- Healthcare Cyber security Business Finance
- HR
- Transportation

Banking - Banking is not new to the trends of Artificial intelligence and machine learning technologies. The sector has rapidly adopted technology to stay up to date with the current market trends. It uses this technology to keep a Recorder customer data, which was earlier a Manual task. With the rapid increase in the amount of data that is being generated and stored in the banking sector today.

Healthcare and Medicine - The healthcare domain uses this technology to its advantage in several ways and continuous to do so innovatively. A use case of artificial intelligence in this sector is the collaborative cancer cloud developed by Intel and knight career institute.

Cyber security - Today, most organizations have already transferred their data to the cloud are on the verge of doing so. To keep their data safe from potential hackers an any sort of unauthorized access so that confidential business information is not leaked, which can create utter confusion and have work in any company, companies need to detect and prevent such attacks.

Finance - Zest automated machine learning(ZAML),an artificial intelligence powered solution developed by zest finance is an example. This AI tool Makes it feasible for financial organizations to assess their borrowers without much information on them. ZAML Users several data points offering transparency.

HR - Professionals in this sector are looking to integrate automation with human efforts to optimize their schedules and gain a simple and intuitive environment at work. This cannot be used for the business that requires intelligence, Creativity, providing a better experience to the employees and job candidates.

Transportation - Artificial intelligence has potential in the transportation industry. With that being said, we can consider the examples of her craft that have been using autopilot since 1922. As the current trend is heavily towards autonomous vehicles from experts believe that AI and machine learning will mark a significant difference in the field, especially related to lower emission rates an error free driving.

CAREER SCOPE IN ARTIFICIAL INTELLIGENCE

As per the reports and service by the World Economic Forum, artificial intelligence is predicted to create tons of job opportunities for entry level an experienced professionals across various sectors in a few years. There are already more than 55,000 jobs open for a I professionals alone in the United States as per the job postings on LinkedIn.

There are millions of opportunities available for AI certified professionals. Some of the career options available for these individuals are listed below

- Al engineer
- Artificial intelligence Programmer Machine learning engineer
- Data scientist NLP engineer Data Analyst AI architect
- AI Software engineer Deep learning engineer

WHAT IS ALTERNATIVE CREDIT DATA?
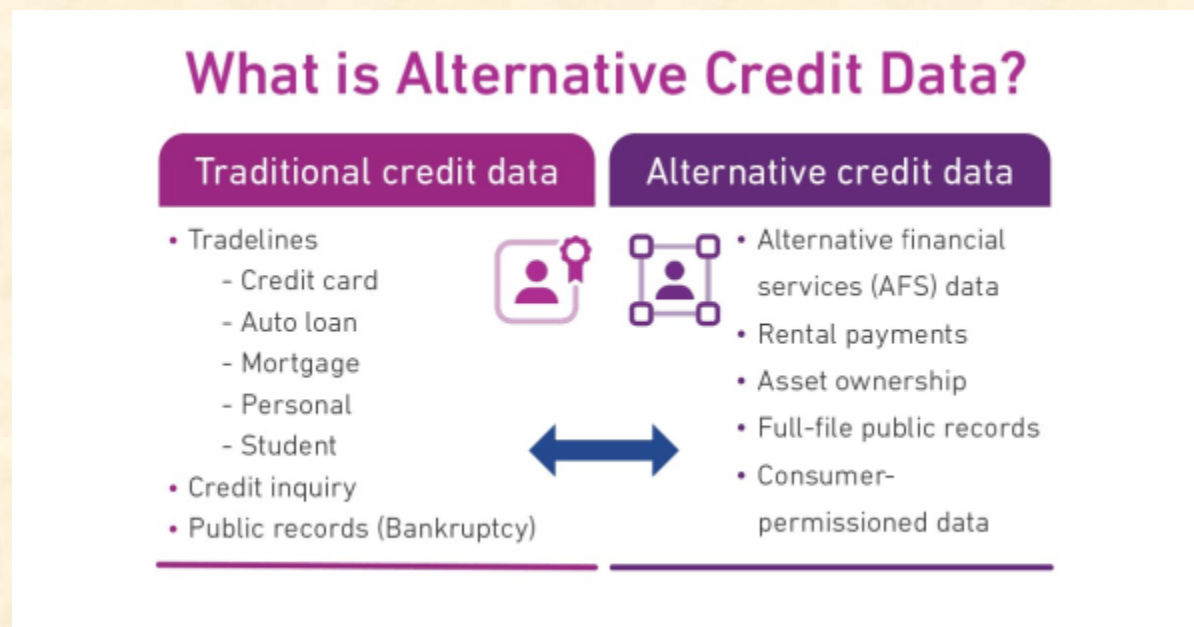
Alternative credit data is information obtained from non-traditional data sources that helps to evaluate a consumer's creditworthiness. While "traditional data" refers to an individual's credit report, alternative data for credit scoring covers non-credit information about insurance payments, utility payments, rental payments, public records, and property records. These data points can help lenders get a sense of an individual's financial reliability. Even the consumer's employment history can assist in credit scoring by substantiating the stability of a person's financial situation.

SOURCES OF ALTERNATIVE CREDIT DATA:

Collected from multiple sources, including a consumer's utility, rental, insurance, and other bills payments history, social media usage, employment history, travel history, e- commerce, government transactions, and property records.

When collecting alternative data for credit risk analysis, it's important to remember that the gathered data must consist of data points that show the loanee's habits, preferences, behavior, and character- which is one of the five C's of credit risk (the others being capacity, condition, capital, and collateral). It's also important to make sure the borrower cannot directly or indirectly manipulate any of the given data. This ensures a thorough evaluation of the potential loanee's financial abilities and credit risk profile.

Alternative credit data source should have these features:

1. Coverage: A data source will ideally have broad and consistent coverage (for instance, the mobile phone market is more concentrated than most others, so data collection is easier there).

2. Specificity: The data source should contain detailed information about the individual/organization applying for a loan. (e.g., timely/late payments over a particular time period, income data, etc.).

3. Accuracy and Timeliness: The data considered must be accurate and updated frequently.

4. Predictive Power: The information should be relevant to the specific consumer behavior being assessed.

5. Orthogonality: Ideally, the data source would complement traditional bureau data, so that its use would improve the accuracy of traditional credit score.

6. Regulatory compliance: Alternative credit data sources must abide by existing regulations for consumer credit.

HOW CAN ALTERNATIVE CREDIT DATA INCREASE ACCURACY IN CREDIT SCORING EVALUATION?

Collecting alternative credit data is not enough. The data then needs to be processed. Scanning through a person's transaction history is cumbersome. There are lots of use cases of advanced data analytics and machine learning in finance. Modern lending companies use AI technologies and machine learning solutions to quickly gain insight from numerous datasets. An AI model can rapidly analyze copious amounts of alternative credit data, significantly reducing the processing

time. More importantly, machine learning algorithms and AI in wealth management solutions can identify patterns in unstructured data — patterns that will help evaluate a loan applicant's consumer behavior and predict ability to repay the loan.

According to FICO's research, alternative credit data captures less value than traditional data, and traditional characteristics, alone, present more insights into a consumer's creditworthiness. However, using alternative credit data in credit risk modeling is the only way to help the credit-invisible consumer qualify for a loan.

CONCLUSION

Artificial intelligence is a field in which constant progress is being made. Many artificial intelligence-enabled machines are already available, making our jobs easier. People with limited knowledge can benefit greatly from the development of numerous artificial intelligence-enabled products. Alternative data sources (such as property, tax, deed records, checking and debit account management, payday lending information, address stability and club subscriptions) have proven to accurately score more than 90% of applicants who otherwise would be returned as no-hit or thin file by traditional models.