

Data Science Applications In An Industry

The role of Data Science Applications hasn't evolved overnight. Thanks to faster computing and cheaper storage, we can now predict outcomes in minutes, what could take several human hours to process.

A Data Scientist gets home a whopping \$124,000 a year and they owe it to the deficiency of skilled professionals in this field. This is the reason why Data Science Certifications are at an all-time high!

Through this Article, we bring to you, applications that build upon the concepts of Data Science, exploring various domains such as the following:

- Fraud and Risk Detection
- Healthcare
- Internet Search
- Targeted Advertising
- Website Recommendations
- Advanced Image Recognition
- Gaming
- Augmented Reality
- Banking
- Finance
- Manufacturing
- Transport
- E-Commerce

Fraud and Risk Detection

The earliest applications of data science were in Finance. Companies were fed up of bad debts and losses every year. However, they had a lot of data which use to get collected during the initial paperwork while sanctioning loans. They decided to bring in data scientists in order to rescue them out of losses.

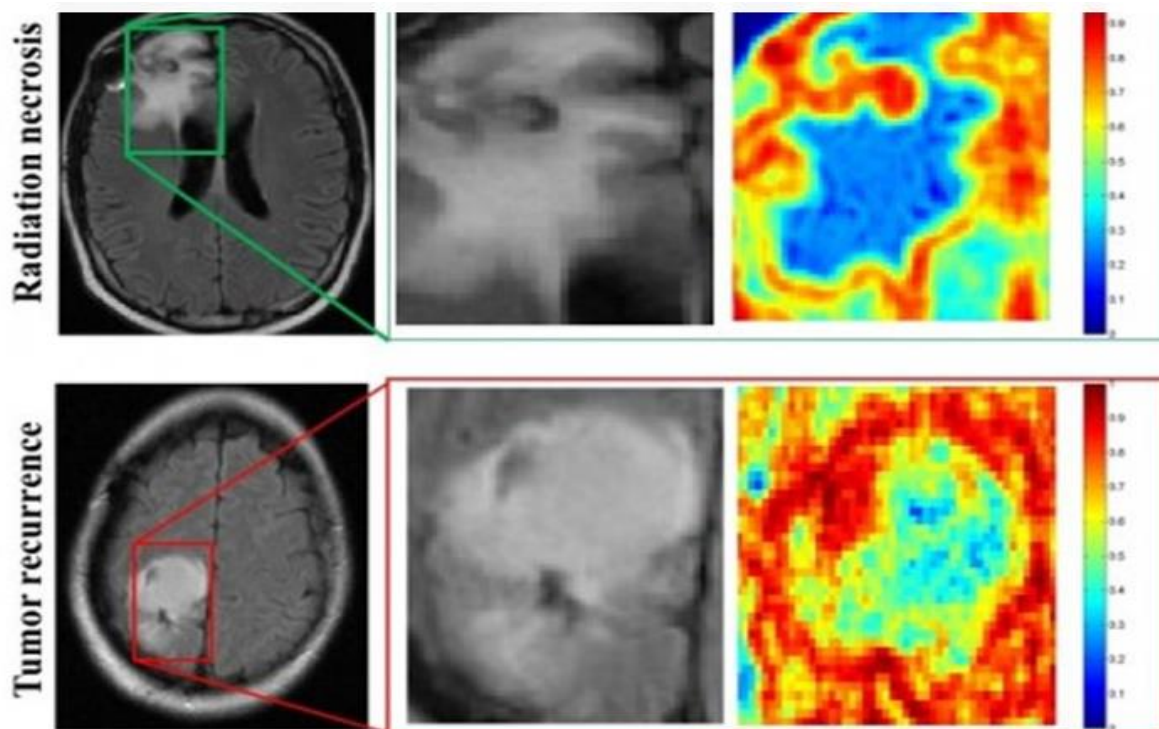
Over the years, banking companies learned to divide and conquer data via customer profiling, past expenditures, and other essential variables to analyze the probabilities of risk and default. Moreover, it also helped them to push their banking products based on customer's purchasing power

Healthcare

The healthcare sector, especially, receives great benefits from data science applications.

1. Medical Image Analysis

Procedures such as detecting tumors , artery stenosis, organ delineation employ various different methods and frameworks like MapReduce to find optimal parameters for tasks like lung texture classification. It applies machine learning methods, support vector machines (SVM), content-based medical image indexing, and wavelet analysis for solid texture classification.



2. Genetics and Genomics

Data Science applications also enable an advanced level of treatment personalization through research in genetics and genomics. The goal is to understand the impact of the DNA on our health and find individual biological connections between genetics, diseases, and drug response. Data science techniques allow integration of different kinds of data with genomic data in the disease research, which provides a deeper understanding of genetic issues in reactions to particular drugs and diseases. As soon as we acquire reliable personal genome data, we will achieve a deeper understanding of the human DNA. The advanced genetic risk prediction will be a major step towards more individual care.

3. Drug Development

The drug discovery process is highly complicated and involves many disciplines. The greatest ideas are often bounded by billions of testing, huge financial and time expenditure. On average, it takes twelve years to make an official submission.

Data science applications and machine learning algorithms simplify and shorten this process, adding a perspective to each step from the initial screening of drug compounds to the prediction of the success rate based on the biological factors. Such algorithms can forecast how the compound will act in the body using advanced mathematical modelling and simulations instead of the “lab experiments”. The idea behind the computational drug discovery is to create computer model simulations as a biologically relevant network simplifying the prediction of future outcomes with high accuracy.

4. Virtual assistance for patients and customer support

Optimization of the clinical process builds upon the concept that for many cases it is not actually necessary for patients to visit doctors in person. A mobile application can give a more effective solution by bringing the doctor to the patient instead.

The AI-powered mobile apps can provide basic healthcare support, usually as chatbots. You simply describe your symptoms, or ask questions, and then receive key information about your medical condition derived from a wide network linking symptoms to causes. Apps can remind you to take your medicine on time, and if necessary, assign an appointment with a doctor.

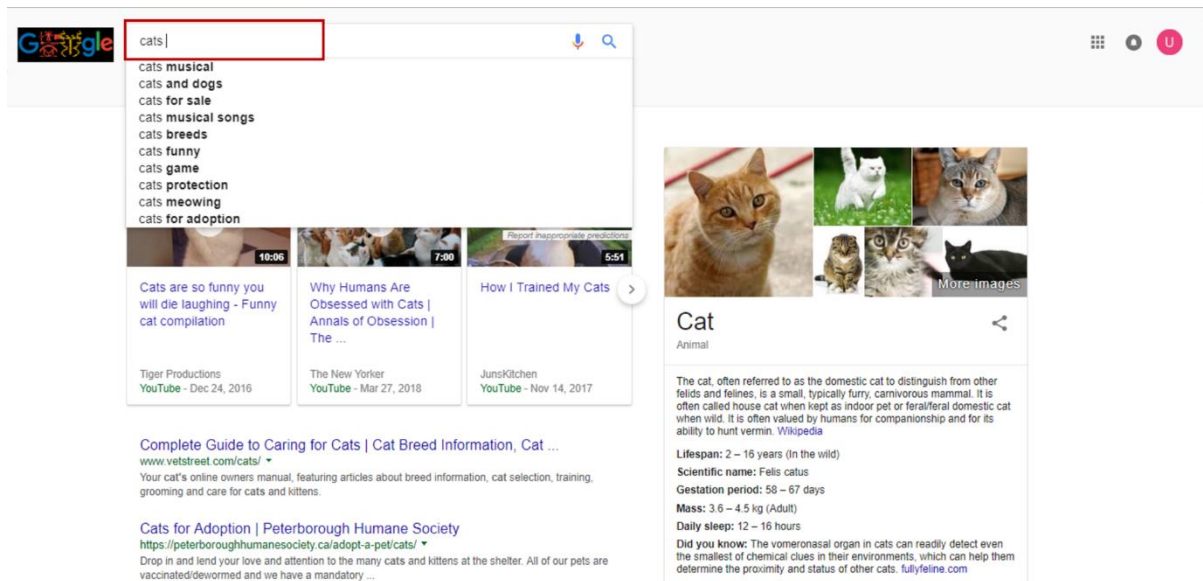
This approach promotes a healthy lifestyle by encouraging patients to make healthy decisions, saves their time waiting in line for an appointment, and allows doctors to focus on more critical cases

Internet Search

Now, this is probably the first thing that strikes your mind when you think Data Science Applications.

When we speak of search, we think ‘Google’. Right? But there are many other search engines like Yahoo, Bing, Ask, AOL, and so on. All these search engines (including Google) make use of data science algorithms to deliver the best result for our searched query in a fraction of seconds. Considering the fact that, Google processes more than 20 petabytes of data every day.

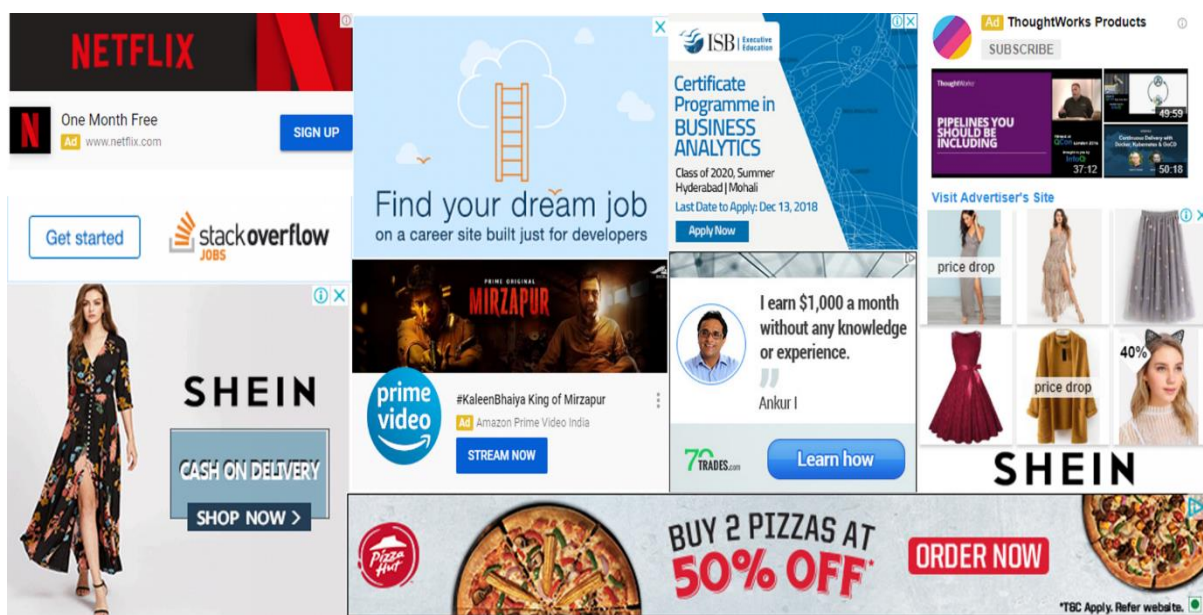
Had there been no data science, Google wouldn’t have been the ‘Google’ we know today.



Targeted Advertising

If you thought Search would have been the biggest of all data science applications, here is a challenger – the entire digital marketing spectrum. Starting from the display banners on various websites to the digital billboards at the airports – almost all of them are decided by using data science algorithms.





This is the reason why digital ads have been able to get a lot higher CTR (Call-Through Rate) than traditional advertisements. They can be targeted based on a user's past behavior. This is the reason why you might see ads of Data Science Training Programs while I see an ad of apparels in the same place at the same time



Website Recommendations

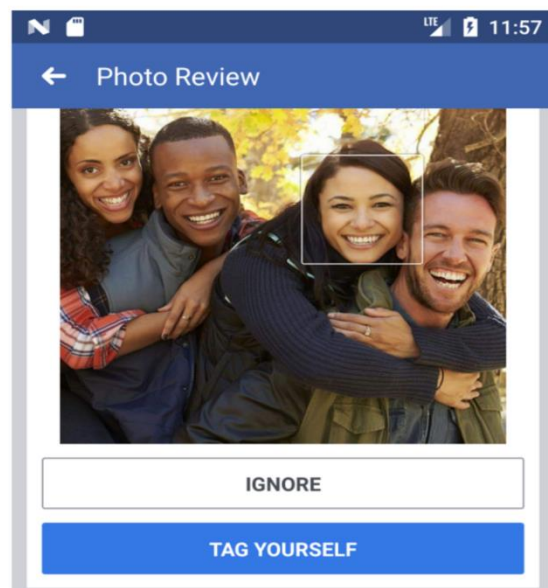
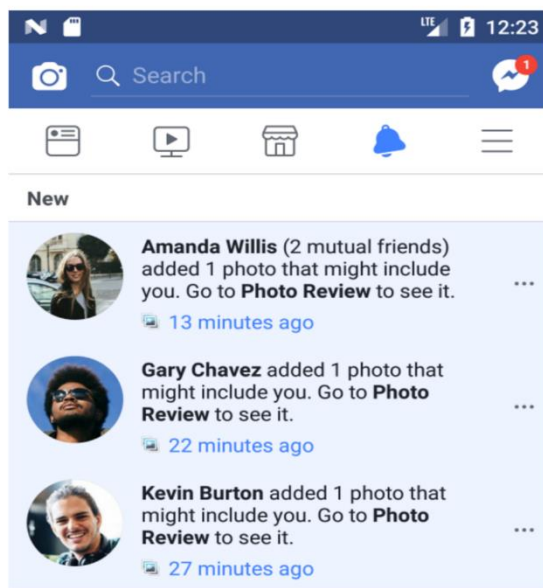
Aren't we all used to the suggestions about similar products on Amazon? They not only help you find relevant products from billions of products available with them but also adds a lot to the user experience. A lot of companies have fervidly used this engine to promote their products in accordance with user's interest and relevance of information. Internet giants like Amazon, Twitter, Google Play, Netflix, Linked in , imdb and many more use this system to improve the user experience. The recommendations are made based on previous search results for a user.

Compare with similar items

				
This item Bose SoundLink Wireless Around-Ear Headphones with Mic (Black)	Sennheiser HD 4.40-BT Bluetooth Headphones (Black)	Bose 741158-0020 SoundLink Wireless Around-Ear Headphones with Mic (White)	Bose 789564-0030 Quiet Comfort 35 Wireless Headphone (Blue)-Special Edition	
Add to Cart	Add to Cart	Add to Cart	Add to Cart	
Customer Rating	★★★★☆ (68)	★★★★☆ (349)	★★★★☆ (22)	★★★★☆ (200)
Price	₹ 19,000.00	₹ 7,490.00	₹ 19,000.00	₹ 29,363.00
Shipping	FREE Shipping	FREE Shipping	FREE Shipping	FREE Shipping
Sold By	Appario Retail Private Ltd	Appario Retail Private Ltd	Appario Retail Private Ltd	Appario Retail Private Ltd
Colour	Black	Black	White	Blue
Connectivity Technology	bluetooth wireless	Bluetooth Wireless	Bluetooth Wireless	Bluetooth Wireless

Advanced Image Recognition

You upload your image with friends on Facebook and you start getting suggestions to tag your friends. This automatic tag suggestion feature uses face recognition algorithm.



In their latest update, Facebook has outlined the additional progress they've made in this area, making specific note of their advances in image recognition accuracy and capacity.

"We've witnessed massive advances in image classification (what is in the image?) as well as object detection (where are the objects?), but this is just the beginning of understanding the most relevant visual content of any image or video. Recently we've been designing techniques that identify and segment each and every object in an image, a key capability that will enable entirely new applications." In addition, Google provides you with the option to search for images by uploading them. It uses image recognition and provides related search results.

- Predict flight delay
- Decide which class of airplanes to buy
- Whether to directly land at the destination or take a halt in between (For example, A flight can have a direct route from New Delhi to New York. Alternatively, it can also choose to halt in any country.)
- Effectively drive customer loyalty programs Southwest Airlines, Alaska Airlines are among the top companies who've embraced data science to bring changes in their way of working.

You can get a better insight into it by referring to this video by our team, which vividly speaks of all the various fields conquered by Data Science Applications.

Gaming

Games are now designed using machine learning algorithms which improve/upgrade themselves as the player moves up to a higher level. In motion gaming also, your opponent (computer) analyzes your previous moves and accordingly shapes up its game. EA Sports, Zynga, Sony, Nintendo, Activision-Blizzard have led gaming experience to the next level using data science.

Augmented Reality

This is the final of the data science applications which seems most exciting in the future. Augmented reality.

Data Science and Virtual Reality do have a relationship, considering a VR headset contains computing knowledge, algorithms and data to provide you with the best viewing experience. A very small step towards this is the high trending game of Pokemon GO. The ability to walk around things and look at Pokemon on walls, streets, things that aren't really there. The creators of this game used the data from

Ingress, the last app from the same company, to choose the locations of the Pokemon and gyms.



However, Data Science makes more sense once VR economy becomes accessible in terms of pricing, and consumer use it often like other apps.

Though, not much has been revealed about them except the prototypes, and neither do we know when they would be available for a common man's disposal. Let's see, what amazing data science applications the future holds for us! Though, not much has been revealed about them except the prototypes, and neither do we know when they would be available for a common man's disposal. Let's see, what amazing data science applications the future holds for us!

Banking

Banking is one of the biggest applications of Data Science. Big Data and Data Science have enabled banks to keep up with the competition. With Data Science, banks can manage their resources efficiently, furthermore, banks can make smarter decisions through fraud detection, management of customer data, risk modeling, real-time predictive analytics, customer segmentation, etc.

Banks also assess the customer lifetime value that allows them to monitor the number of customers that they have. It provides them with several predictions that the business bank will derive through their customers. In case of fraud detection, banks allow the companies to detect frauds that involve a credit card, insurance, and accounting. Banks are also able to analyze investment patterns and cycles of customers and suggest you several offers that suit you accordingly.

Furthermore, banks have the ability to risk modeling through data science through which they can assess their overall performance. With Data Science, banks are able to tailor personalized marketing that suits the needs of their clients. In real-time and

predictive analytics, banks use machine learning algorithms to improve their analytics strategy. Furthermore, banks use real-time analytics to understand underlying problems that impede their performance.

Finance

Data Science has played a key role in automating various financial tasks. Just like how banks have automated risk analytics, finance industries have also used data science for this task. Financial industries need to automate risk analytics in order to carry out strategic decisions for the company. Using machine learning, they identify, monitor and prioritize the risks. These machine learning algorithms enhance cost efficiency and model sustainability through training on the massively available customer data. Similarly, financial institutions use machine learning for predictive analytics. It allows the companies to predict customer lifetime value and their stock market moves.

Data Science also plays a key role in algorithmic trading. Through rigorous analysis of data, financial institutions are able to make data-driven decisions. It is also playing an important role in making the customer experiences better for the users. Through extensive analysis of client experience and modification of preferences, financial institutions are able to create a personalized relationship with their customers.

This is further boosted by the real-time analytics of customers which increases the personalization. Through various customer sentiment analysis techniques and machine learning algorithms, we can boost the social media interaction, boost their feedback and analyze customer reviews. Also, the additional machine learning techniques like natural language processing and data mining have contributed to the transformation of information for smarter governance that helps to increase the profitability of businesses.

Manufacturing

In the 21st century, Data Scientists are the new factory workers. That means that data scientists have acquired a key position in the manufacturing industries. Data Science is being extensively used in manufacturing industries for optimizing production, reducing costs and boosting the profits. Furthermore, with the addition of technologies like the Internet of Things (IoT), data science has enabled the companies to predict potential problems, monitor systems and analyze the continuous stream of data.

Furthermore, with data science, industries can monitor their energy costs and can also optimize their production hours.

With a thorough analysis of customer reviews, data scientists can help the industries to make better decisions and improve the quality of their products. Another important aspect of data science in industries is Automation. With the help of historical and real-time data, industries are able to develop autonomous systems that are helpful in boosting the production of manufacturing lines. It has taken away the redundant jobs and introduced powerful machines that use machine learning technologies like reinforcement learning.

Transport

Another important application of data science is transport. In the transportation sector, Data Science is actively making its mark in making safer driving environments for the drivers. It is also playing a key role in optimizing vehicle performance and adding greater autonomy to the drivers. Furthermore, in the transport sector, Data Science has actively increased its manifold with the introduction of self-driving cars.

Through extensive analysis of fuel consumption patterns, driver behavior and active vehicle monitoring, data science has created a strong foothold in the transport industry. The self-driving cars the most trending topics in the world today. With the introduction of autonomy to vehicles through reinforcement learning, vehicle manufacturers are able to create intelligent automobiles. Furthermore, industries can create better logistical routes with the help of data science. Using a variety of variables like consumer profile, location, economic indicators, and logistics, vendors can optimize delivery routes and provide a proper allocation of resources.

Also, various transportation companies like Uber is using data science for price optimization and providing better experiences to their customers. Using powerful predictive tools, they accurately predict the price based on parameters like a weather pattern, availability of transport, customers, etc.

E-Commerce

E-commerce and retail industries have been hugely benefitted by data science. Some of the ways in which data science has transformed the e-commerce industries are-

- For identifying a potential customer base, data science is being heavily utilized.
- Usage of predictive analytics for forecasting the goods and services.
- Data Science is also used for identifying styles of popular products and predicting their trends.
- With data science, companies are optimizing their pricing structures for their consumers.

Data Science is also being heavily used in collaborative filtering, where it forms the backbone of advanced recommendation system. Using this technique, the e-commerce platforms are able to provide insights to the customers based on their historical purchases and purchases made by people of the same style. These type of hybrid recommendation systems, consisting of both collaborative and content-based filtering are helping the industries to provide better services to their customers.

Also, companies are making use of sentiment analysis to analyze the feedbacks provided by the customers. This makes use of natural language processing to analyze texts and online surveys. Fraud Detection, which is the central role of machine learning in industries is tailored for finding fraud merchants and frauds in wire-transfers.