



## Imaginations and Intelligence in Regression

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**Abstract:** This analysis of regression describes the applications of regression in various fields such as medicine, transport, Aircraft, electricity, society problems such as and any kind of statistical reports. From these regression analysis, the fields which do not have adequate resources can easily be identified. This paper highlighted that the responsibilities of the distinct departments and the public of the country.

**Index Terms – Regression, Prediction**

### INTRODUCTION

STATISTICAL SURVEYS ARE FUNDAMENTAL TO COUNTRY'S DEVELOPMENT. ENERGY CONSERVATION NEEDS REGRESSION ANALYSIS WHICH IS ALREADY AVAILABLE IN THE PREVIOUS REPORTS. ENERGY LOSS OCCURS DUE TO FACTORS SUCH AS POOR MAINTENANCE OF MACHINERY AT INDUSTRIES, TRANSMISSION LOSS AND EQUIPMENT REPAIRS AT INDUSTRIES ARE HIGH. AWARENESS AMONG STATISTICS SHOULD IMPROVE ON THE SCHEMES AND SUPPORT AVAILABLE FROM THE GOVERNMENT.

### SIGNIFICANCE

Many Complex engineering problems are concerned with determining a relationship between a set of variables.

For instance, in a chemical process, we might be interested in the relationship between output of the process, the temperature at which it occurs and the amount of catalyst employed.

### Aircraft

Machine learning is used in Aircraft to detect the status of the Aircraft engines. High frequent maintenance is required for aircraft to avoid catastrophic failures. This maintaining process is costly because of labor charge, time, etc.

Number of sensors is fitted to engines to monitor temperature, pressure, moisture, wind speed, fuel-speed ratio, etc. Data are collected from these sensors. Then machine learning algorithms are used to predict the engine status whether to service the engine or to continue ride instead of landing of aircraft frequently. To make the prediction, a machine learning model is made with large amount of data that is already noted from the sensors fitted in engines which felt under defect due to certain conditions of sensor readings.

### Electricity Production and supply

Before some years, electricity needed to be generated and to supplied was predicted with less accuracy. This caused uneven supply of electricity to areas, loss in over production of electricity, demand in electricity, etc.

This problem was solved by applying data science and machine learning to predict the amount of electricity to produce and to overcome the problem of uneven supply of electricity. Electric circuits are used to get the data about electricity usage in every area. These data are stored and accessed in the cloud. Predictive analysis and machine learning model are done with these data to predict the required production and supply of electricity. As these predictions are with high accuracy, this electricity was reduced.

### Self-driving Cars

Self-driving car is one of the top technologies the modern revolution. Artificial intelligence is the brain of the self-driving cars. Deep learning and machine learning are the main components of artificial intelligence. Machine learning is used in speech recognition, gesture recognition, sensor fusion engineering etc. Natural language processing is used to receive information from driver as a text or speech. Gesture recognition is done with camera and algorithm to recognize the gestures from the driver. All these technologies run with calculus, statistics and algebra as pre-requisites.

IoT devices are connected to engines and tires to check and maintain their condition with the help of machine learning algorithms and data collected from IoT device.

## **Disease prediction with patient's data**

Even though doctors are being the main reason for finding and predicting disease from patient and curing them, they fail sometimes by taking wrong decisions in predicting exact disease. This problem is solved by data analytics. Doctors predict diseases from symptoms, blood samples, body condition, etc. All these data are collected from many similar patients affected by certain diseases. From these data, machine learning model is created. From this model, a second opinion is taken by applying the patients' data in the machine learning model. From this, wrong prediction is avoided in medical areas by increasing the accuracy of the result.

## **Medical researches**

In medical researches, scientists find medicines with different qualities and quantities to cure diseases. When they want to test and find the efficient result of a medicine, it may take many months and years. This is solved by statistics and machine learning models. A statistical and machine learning model is created with the medicine data and disease data. Medicine data will be like quality, chemical components, quantity, time of curing, etc. On running this model, maximum efficiency of medicine components can be found easily. If it is tested manually without applying statistical and machine learning techniques, it may take months and years. But now it is found quickly and efficiently with modern Machine learning technology.

## **Cancer and Tumor prediction from X-ray reports**

Nowadays, even doctors use machine learning and deep learning software for predicting cancer and tumor cells from patient's x-ray details. In this software, mathematical concepts used are statistics, algebra and calculus. These concepts are used to detect cancer and tumor cells by scanning the image data of patient's x-ray scan details and comparing with already created model from disease affected patients. This increases the accuracy of predicting the cancer and tumor cells.

## **Improving sales and productivity**

Statistics is widely used in business rather used in other fields. Statistics and machine learning is used to increase the sales and productivity of a company. Data about a product/company is collected from the product users. Data about a product like design, price, compactness, quality, preferences, negatives, positives, etc., are collected from the user. A statistical and machine learning model is created from the data collected from costumers. From this model, a company can understand the exact preferences of the customer under different categories. From this a product can be produced and sold efficiently. It will be helpful for a company to attract different categories of customer

## **Stock Prediction**

Many stock brokers use Machine Learning to predict the stock prices and increase their accuracy of prediction. For these predictions, data is collected from professional social media. A sentiment analysis is done from the user data in the social media about stocks. Even though they take manual predictions, this analysis increases the accuracy off the decision.

## **Marketing**

Data of various users are collected. These collected data are changed into statistical and machine learning model. Then the data is analyzed and the users' expectations and their needs are found. These reports are then used to categorize users into different groups. For instance YouTube uses machine learning algorithm, it studies your activity and shows the things related to your recent searches in news feed. Amazon also uses same kind of algorithm to show the products related to the products you bought recently. This helps to enhance the opinion of user towards them and also helps them to sell more and more products.

## **Food amount prediction**

Tons and tons of food are consumed by human every day for survival. In this supply chain of food, there is some uneven supply of food in some areas. This creates unnecessary demand of food. This can be solved by predicting the food amount needed to each area with the population data of each area. A machine learning and statistical model can be created with the population data and food required data. This model can solve the unnecessary demand of food.

In future, every one's house is going to be full of IoT devices to manage and simplify the house works. This problem can be solved with a model of high accuracy if data is available from IoT devices of each and every house.

## **Fraud detection systems**

Machine learning algorithms are used in Credit card fraud detection system and spam filtering of e-mails. This algorithm increases the security of the systems.

## **Mental health**

In this modern world, because of the smart phones and other technology, everyone started isolating themselves. Due to this, they feel lonely which creates lots of mental diseases. To cure this, many artificial intelligence chat bots are created to talk with people. This chat bot application is made with the base of statistics and machine learning. These bots recognize the speech of the user and determine the answer to respond. This predicts the exact answer to respond to the user which makes the user feel better with the statistical and machine learning models.

## **Machine Learning**

Machine learning and statistical models are created in the human brain research. In our human brain, chemical reactions and signals are passed for every action. These reactions and signals are taken as data and model is generated. This model is used to understand each and every reaction of humans. These types of researches are used for developing humanoid robots and also to cure mental diseases.

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