**1.Price evaluation model in second-hand car system based on BP neural network theory**

[Ning Sun](https://ieeexplore.ieee.org/author/37397287600)

**Dept. of IoT Engineering, Hohai University, Changzhou, China**

[Hongxi Bai](https://ieeexplore.ieee.org/author/37086128385)

**Dept. of IoT Engineering, Hohai University, Changzhou, China**

[Yuxia Geng](https://ieeexplore.ieee.org/author/37086130348)

**Dept. of IoT Engineering, Hohai University, Changzhou, China**

[Huizhu Shi](https://ieeexplore.ieee.org/author/37086134303)

**Dept. of IoT Engineering, Hohai University, Changzhou, China**

With the rapid growth of the number of private cars and the development of the second-hand car market, second-hand cars have become the main choice when people buy cars. The online second-hand car platform provides both buyers and sellers the chance of online P2P trade. In such systems, the accuracy of second-hand car price evaluation largely determines whether the seller and the buyer can get more efficient trading experience. In this paper, the price evaluation model based on big data analysis is proposed, which takes advantage of widely circulated vehicle data and a large number of vehicle transaction data to analyze the price data for each type of vehicles by using the optimized BP neural network algorithm. It aims to establish a second-hand car price evaluation model to get the price that best matches the car. In this paper, the optimized BP neural network algorithm is used to select the optimal number of hidden neurons in BP neural network, which improves the convergence speed of the network topology and the accuracy of the prediction model. Through the sampling simulation experiments, the fitting curve of the prediction price is compared with the real transaction price derived from the optimized model. As a result, the fitting of the optimized model is better as well as the accuracy is higher.

# 2.Machine Learning Techniques To Predict The Price Of Used Cars: Predictive Analytics in Retail Business

[Chejarla Venkat Narayana](https://ieeexplore.ieee.org/author/37088577119)

**Computer Science and Engineering, Lakireddy Bali Reddy college of Engineering, Mylavaram, Andhra Pradesh, India**

[Chinta Lakshmi Likhitha](https://ieeexplore.ieee.org/author/37088973339)

**Computer Science and Engineering, Lakireddy Bali Reddy college of Engineering, Mylavaram, Andhra Pradesh, India**

[Syed Bademiya](https://ieeexplore.ieee.org/author/37088974880)

**Computer Science and Engineering, Lakireddy Bali Reddy college of Engineering, Mylavaram, Andhra Pradesh, India**

[Karre Kusumanjali](https://ieeexplore.ieee.org/author/37088975238)

**Computer Science and Engineering, Lakireddy Bali Reddy college of Engineering, Mylavaram, Andhra Pradesh, India**

It is generally known that, taking wise and challenging decisions is really a crucial task in every business. Taking improper decisions can cause huge loss and even lead to shutdown of business. To propose a novel solution for this challenge, this research work majorly focuses on one of the retail businesses i.e., used car sales business. The proposed research work shows that, the predictive analytical models will be a great add-on to business mainly for assisting the decision making process. Predictive Analytics is a process, where the businesses use statistical methods and technologies to analyze their historical data for delivering new insights and plan the future accordingly. The major objective of our paper is to build a prediction model i.e., a fair price mechanism to predict the cars selling price based on their features like the car model, the number of years that a car is old, the type of fuel it uses, the type of seller, the type of transmission and the number of kilometers that the car has driven so far. This paper will help to get an approximation about selling price of a used car based on its features and reduces the seller and consumer risk in business. The proposed model utilizes the machine learning algorithms and regression techniques of statistics like linear, decision tree and random forest regressions to achieve this task.

# 3.Used Car Price Prediction using Machine Learning: A Case Study

[Mustapha Hankar](https://ieeexplore.ieee.org/author/37089427820)

**Department of computer science Faculty of sciences, LAROSERI Lab, Chouaib Doukkali University, El Jadida, Morocco**

[Marouane Birjali](https://ieeexplore.ieee.org/author/37086002394)

**Department of computer science Faculty of sciences, LAROSERI Lab, Chouaib Doukkali University, El Jadida, Morocco**

[Abderrahim Beni-Hssane](https://ieeexplore.ieee.org/author/37705911700)

**Department of computer science Faculty of sciences, LAROSERI Lab, Chouaib Doukkali University, El Jadida, Morocco**

In many business fields that are related to statistics and machine learning (ML), multiple linear regression (MLR) models are often used to estimate and fit a linear relationship between a continuous response variable and other explanatory variables. In our case study, we applied several regression techniques based on supervised machine learning to predict the resale price of used cars given many factors such as mileage, fuel type, fiscal power, mark, model, and the production year of the car. In all tested models, gradient boosting regressor showed a high R-squared score and low root mean square error.

# 4.Prediction Of Used Car Prices Using Artificial Neural Networks And Machine Learning

[Janke Varshitha](https://ieeexplore.ieee.org/author/37089350740)

**B.Tech Students in Electronics and Communication Engineering, SASTRA Deemed University, Thanjavur, India**

[K Jahnavi](https://ieeexplore.ieee.org/author/37088509390)

**B.Tech Students in Electronics and Communication Engineering, SASTRA Deemed University, Thanjavur, India**

[C. Lakshmi](https://ieeexplore.ieee.org/author/37089030206)

**Faculty in School of Electrical & Electronics Engineering, SASTRA Deemed University, Thanjavur, India**

With the extensive growth in usage of cars, the newly produced cars are unable to reach the customers for various reasons like high prices, less availability, financial incapability, and so on. Hence the used car market is escalated across the globe but in India, the used car market is in a very nascent stage and mostly dominated by the unorganized sector. This gives chance for fraud while buying a used car. Hence a high precision model is required which will estimate the price of an used car with none bias towards customer or merchandiser.In this model, A Supervised learning-based Artificial Neural Network model and Random Forest Machine Learning model are developed which can learn from the car dataset provided to it. This project presents a working model for used car price prediction with a low error value. A considerable number of distinct attributes are examined for reliable and accurate predictions. The results obtained agree with theoretical predictions and have shown improvement over models which use simple linear models. An ANN (Artificial Neural Network) is built by using Keras Regression algorithm namely Keras Regressor and other Machine Learning Algorithms namely Random Forest, Lasso, Ridge, Linear regressions are built. These algorithms are tested with the car dataset. Experimental results have shown that the Random Forest model with a Mean Absolute Error value of 1.0970472 and R2 error value of 0.772584 has given the less error among all the other algorithms. The work presented here has shown profound implications for future studies of Used Cars price Prediction using Random Forest and might one day help to solve the problem of fraudswith one hundred percent accuracy.

# 5.Prediction of Used Car Price Based on Supervised Learning Algorithm

[Feng Wang](https://ieeexplore.ieee.org/author/37089329182)

**College of Computer Studies, Angeles University Foundation, Angeles, Philippines**

[Xusong Zhang](https://ieeexplore.ieee.org/author/37089329110)

**College of Computer Studies, Angeles University Foundation, Angeles, Philippines**

[Qiang Wang](https://ieeexplore.ieee.org/author/37089328298)

**College of Computer Studies, Angeles University Foundation, Angeles, Philippines**

# In this paper, we use machine learning algorithms to predict the price of used cars with less human intervention to make the results more objective. The method used is to preprocess the dataset through Python's Pycaret package and compare the performance of each algorithm through the algorithm comparison function, in this study Extra Trees Regressor, Random Forest Regressor performs relatively well. Finally, the algorithm was optimized by using the hyperparameter function. The results show that R2 = 0.9807 obtained from extreme random numbers is the best performance. The algorithm was obtained and validated with new data to derive the final algorithm model. When new used car data flows into the used car system, used car prices will be automatically generated by this algorithm, which will make the workflow of the used car market faster and more competitive for that used car market.