XiongXiao

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St. Petersburg
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Male | Han
Fresh graduates

EDUCATION

St. Petersburg State University, Russia   Sep 2023 - Jul 2025

Game Theory and Operations Research Master Applied mathematics and   St. Petersburg
control processes

Related courses: Game theory, cybernetics, machine learning, deep learning, etc.

Yan'an University   Sep 2019 - Jun 2023

IoT Engineering Bachelor School of Mathematics and Computer Science   Yan'an

PROJECT EXPERIENCE

Automobile price forecast model construction and analysis   Mar 2024 - May 2024

Project leader   St. Petersburg

Project background and objectives: The aim is to build a multi-linear regression model to predict car prices, analyze the impact of multi-dimensional attributes such as vehicle age and mileage on prices, and provide price prediction support for the automobile trading market.

Responsibilities and results of the:

Data processing and analysis: Select more than 30 samples from Toyota Corolla data set, extract 8 independent variables and price dependent variables, calculate the numerical characteristics of each variable, construct a correlation matrix, find the significant correlation between vehicle age, mileage, etc. and price, and provide a basis for variable screening.
Model construction and evaluation: the initial multi-linear regression model is built, its decision coefficient is 0.8721, the adjustment decision coefficient is 0.8714, and the fitting effect is good. By calculating the standard error and confidence interval, the significant and insignificant variables are identified, and the VIF test is used to confirm that there is no multicollinearity problem.

Model optimization and verification:
The model is optimized by forward selection method, and after MAPE evaluation, the average absolute percentage error of the optimized model prediction is about 9.59, and the performance is good. Strictly verify the model residuals, ensure that there is no systematic error, meet the same variance, detect self-correlation, residual independence and normality, and use Box-Cox transformation and other means to improve the stability and reliability of the model.

Forecasting application:
based on the optimization model, the independent variable growth of 10% and 20% of the price forecast, to provide accurate point forecast value and range forecast value, for the car transaction price forecast to provide a strong reference. Through this project, master the whole process of multiple linear regression, improve data processing, model optimization and results interpretation capabilities.

Application and analysis of clustering algorithms on multiple data sets   Sep 2024 - Dec 2024

Project leader   St. Petersburg

Project Description: The purpose of this project is to study the performance of clustering algorithms on different data sets, optimize the effect of algorithms through practice, and provide support for decision-making in related fields.

Responsibilities and results of the:

Data processing: Collect and pre-process the soybean planting and supermarket customer data sets. In soybean data processing, the data of 4 repeated experiments were averaged, non-numerical columns were removed and standardized, and the distribution differences of age, income and consumption scores were analyzed by gender stratification for supermarket customer data, which laid the foundation for subsequent analysis.

Algorithm application and optimization:
clustering analysis using AP and K-Means algorithm. On the soybean data set, the initial clustering effect of AP algorithm is not good, and the damping factor is still not ideal after adjusting, and the K-Means algorithm determines the optimal K value by elbow method, and the clustering effect is slightly better. On the supermarket customer data set, the AP algorithm generates uniform clustering but the interpretation is

poor, and the K-Means algorithm divides the customer group according to the number of recommend clusters.

Algorithm evaluation and experience accumulation:
evaluate the performance of two algorithms comprehensively. The AP algorithm does not need to preset the number of clusters, can automatically determine the cluster center and consider the relationship between data points, but is sensitive to parameters, complex to calculate, and the results are difficult to interpret; the K-Means algorithm is computationally efficient and the results are relatively intuitive, but the number of clusters needs to be preset and may be affected by the initial center. Through the project, we have accumulated a wealth of experience in the application and optimization of clustering algorithms, which provides a powerful reference for the selection of appropriate algorithms in different scenarios.

PROFESSIONAL EXPERIENCE

Beijing Walnut Technology Co., Ltd   Jul 2023 - Nov 2023

Python lecturer   Xi'an

In the company mainly as a teacher through online teaching to teach children to learn Python programming language

Weinan municipal government   Mar 2020 - Jul 2020

Network letter department   Weinan

- In the Weinan City Fifth People's Congress and CPPCC meetings to maintain network hardware facilities, debugging machines, to ensure that the conference smoothly.

SUMMARY

- Work steadfast, savvy, can quickly adapt to new positions, can at any time according to work needs to adjust working methods and correct mentality, constantly reflect on themselves, pay attention to
- People grow up and can effectively improve their working methods, thus receiving good results.
- Familiar with Python programming language, has a basic artificial intelligence learning foundation such as machine learning, deep learning, etc., but also has a deep game theory foundation and control theory optimization foundation

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- Honorary Award
- In the 2020-2021 academic year, he was awarded the second prize of excellent college students

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- Social Practice Excellent Team Second Prize In the college-level social practice activities, our team through their own personal actions, to care for left-behind children
- National College Students Mathematical Modeling Contest to participate in the National College Students Mathematical Modeling Contest to win a successful entry award

MISCELLANEOUS

- **Skills:** Python,C,Linux, Basketball, Guitar, Internet of Things, Linux System, Mathematical Modeling
- **Certifications:** Computer Level 2
- **Languages:** English (CET-4), Russian